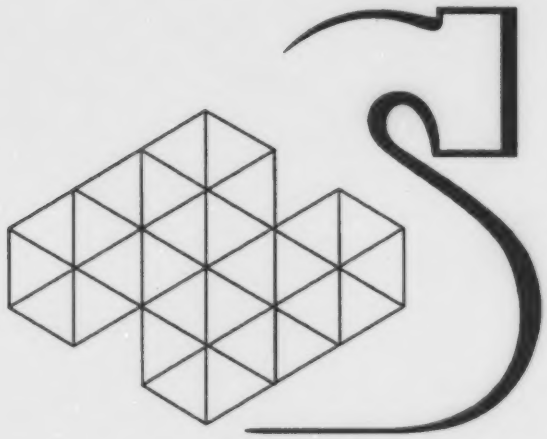

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TRUST IN TEAMS

LITERATURE REVIEW

By B.D. Adams, D.J. Bryant, R.D.G. Webb

March 2001

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LITERATURE REVIEW

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Abstract

This report reviews research literature pertaining to trust in small teams. In particular, the review relates scientific and military literature to trust, identifies factors impacting on the development and maintenance of trust, explores measures and methodologies, and generates recommendations for a research program to study trust in small teams. Based on the review, the report identifies an important distinction between person-based and category-based trust and argues that both forms of trust are likely to play a critical role in military teams. The existing literature on trust and performance is reviewed, and current gaps in the literature are identified. We also argue that trust and Common Intent appear to be linked by a mutual association with mental models, and that understanding trust and mental models may prove a profitable area for both future research and theoretical development. A framework for research is proposed to examine the nature of trust in small teams, the factors impacting on the development and maintenance of trust, and the impact of trust on team process and performance.

Executive Summary

This report reviews the results of a keyword search of the research literature relevant to trust in small teams. The goals of this review were to:

- Present empirical and theoretical work in the scientific and military literature relevant to trust in the context of small dismounted infantry teams
- Identify factors that affect the development, maintenance and erosion of trust
- Identify the effects of trust on team process and team performance
- Relate existing trust research to the theory of Common Intent and Command and Control
- Identify methodologies for the study of trust in the small infantry team context
- Generate recommendations for a research program to explore trust in small infantry teams

The search yielded approximately 300 titles and abstracts, with approximately 50 articles reviewed in detail. These articles were drawn from research in areas such as behavioural science, organizational theory, economics, as well as military theory and research.

The report contains sections reviewing studies and theory relating to:

- Trust as a concept
- Development of person-based trust
- Emergence of category-based trust
- Environmental and team factors affecting trust
- Trust and leadership
- The effects of trust on group process and performance
- Protecting trust
- Linking trust to the theory of Common Intent
- Measures and methods related to trust
- A proposed research program

Based on the review, the report identifies an important distinction between person-based and category-based trust and argues that both forms of trust are likely to play a critical role in military teams. The review also discusses existing literature on trust and performance, as well as identifying several issues related to trust in infantry teams that require further empirical research.

Lastly, we also argue that trust and Common Intent appear to be linked by their mutual association with mental models, and that understanding trust and mental models may prove a profitable area for future research and theoretical development. A framework for research is proposed to examine the nature of trust in small infantry teams, the factors that impact on the development and maintenance of trust, and the important question of whether trust within infantry teams improves performance.

Résumé analytique

Le présent rapport passe en revue des comptes rendus de recherche sur la confiance dans les petites équipes. Il établit notamment des liens entre la documentation scientifique et militaire et la confiance, définit des facteurs qui suscitent la confiance et contribuent à son maintien, explore des mesures et des méthodes et présente des recommandations pour élaborer un programme de recherche sur la confiance dans les petites équipes. Le rapport tient compte de cette revue pour faire une nette distinction entre la confiance inspirée par la personne et la confiance inspirée par la catégorie. Il soutient par ailleurs que ces deux notions de confiance jouent probablement un rôle décisif dans les équipes militaires. Nous avons passé en revue les documents existants sur la confiance et le rendement et nous en avons dégagé les lacunes. Nous soutenons également que la confiance et l'intention commune sont vraisemblablement liées à des modèles mentaux grâce à leur association mutuelle et que l'intelligence de la confiance et des modèles mentaux s'avérerait un domaine favorable et à la recherche et au développement théoriques. Le rapport propose enfin un cadre de recherche pour examiner le genre de confiance qui existe dans les petites équipes, les facteurs qui favorisent l'établissement et la conservation de la confiance et l'effet de la confiance sur les opérations et le rendement de l'équipe.

Résumé

Le présent rapport passe en revue les résultats d'une recherche, par mots clés, de comptes rendus de recherche sur la confiance dans les petites équipes Les objectifs de cette revue sont les suivants

- Présenter un travail théorique et empirique dans les documents scientifiques et militaires, portant sur la confiance dans le contexte des petites équipes d'infanterie débarquée.
- Préciser les facteurs qui contribuent à l'établissement, à la conservation et à l'érosion de la confiance
- Déterminer les effets de la confiance sur les opérations et le rendement de l'équipe.
- Établir les relations entre la recherche sur la confiance poursuivie actuellement et la théorie d'intention commune et de commandement et contrôle
- Établir des méthodes pour l'étude de la confiance dans le contexte des petites équipes d'infanterie débarquée
- Formuler des recommandations pour un programme de recherche sur la confiance dans les petites équipes d'infanterie débarquée.

La recherche par mots clés a fourni 300 titres et résumés. On a étudié en détail environ 50 articles tirés de recherches effectuées dans des domaines tels que les sciences du comportement, la théorie organisationnelle, l'économie ainsi que la théorie et la recherche militaires.
Le rapport renferme des sections qui examinent la théorie et l'étude concernant :

- la confiance en tant que concept;
- la naissance de la confiance inspirée par la personne,
- la naissance de la confiance inspirée par la catégorie;
- les facteurs environnementaux et les facteurs liés à l'équipe qui influent sur la confiance;
- la confiance et le commandement;
- l'effet de la confiance sur les opérations et le rendement du groupe;
- la protection de la confiance
- le fait de lier la confiance à la théorie d'intention commune
- les mesures et méthodes liées à la confiance
- la proposition d'un programme de recherche

Le rapport tient compte de cette revue pour faire une nette distinction entre la confiance inspirée par la personne et la confiance inspirée par la catégorie. Il soutient par ailleurs que les deux notions de confiance jouent probablement un rôle décisif dans les équipes militaires. Il traite également des documents existants sur la confiance et le rendement et mentionne plusieurs questions liées à la confiance dans les équipes d'infanterie, questions qui nécessitent une recherche empirique approfondie

Enfin, nous soutenons également que la confiance et l'intention commune sont vraisemblablement liées à des modèles mentaux grâce à leur association mutuelle et que l'intelligence de la confiance et des modèles mentaux s'avérerait un domaine favorable et

à la recherche et au développement théoriques. Nous proposons enfin un cadre de recherche pour examiner la nature de la confiance qui existe dans les petites équipes d'infanterie, les facteurs qui favorisent l'établissement et la conservation de la confiance et l'importante question de savoir si la confiance au sein des équipes d'infanterie améliore le rendement.

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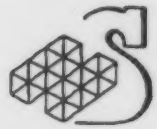

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Chapter 1 – Introduction

1.1 Background

This review stems from the work of the Command Group (CG) at the Defence and Civil Institute of Environmental Medicine (DCIEM). This group has focused previous research efforts on the decision-making performance of small military teams. The Command Group is extending the scope of their teamwork research to explore trust, as one of many factors that influence team performance.

In order to understand how trust influences small team performance, however, it is important to explore the significant body of work that has examined trust. This review is in support of that effort. Although still in a relatively early stage of development, current trust research and theory provide a strong base for beginning to understand and study trust within small military teams. This review also lays out the first stages of a research program to study the impact of trust on team performance.

1.2 Purpose

The purpose of this literature review is to develop ideas related to the empirical investigation of trust in small infantry teams. The literature review is intended to:

- Present empirical and theoretical work in the scientific and military literature relevant to trust in the context of small dismounted infantry teams
- Identify factors that affect the development, maintenance and erosion of trust
- Identify the effects of trust on performance
- Identify methodologies for the study of trust in the infantry context
- Generate recommendations for a research program to explore trust in small infantry teams

1.3 Scope

This literature review focuses on available research relevant to the issue of trust within the context in small teams. As the research directly addressing trust in small teams appeared to be rather limited, however, it was necessary to take a wider overview of trust research and theory from a variety of domains. These domains include trust in close intimate relationships, trust in the workplace, and trust within organizations. Although focusing on trust within infantry teams, it seemed critical to consider trust within a broader military context. This involved considering trust in infantry teams and other military teams, and to a lesser extent, trust within the military system as a whole. This review considers trust research addressing interpersonal, intragroup, intergroup, and trust within organizations. As the broadest level of this review is the military as an organization, however, the body of work relating to trust between organizations was deemed beyond the scope of this review. This decision was supported by empirical evidence showing interorganizational trust to be distinct from interpersonal and intragroup trust (Zaheer, McEvily and Perrone, 1998).

1.4 Work Items

The following work items were performed:

- A search of the literature to identify relevant journal articles, reports, books, etc. pertaining to trust.
- References to relevant literature were recorded in an EndNote database.
- Approximately 50 articles were selected from those identified in the search and reviewed.
- A report documenting the results of the literature review was written.

1.5 Deliverables

The following deliverables were created under this contract:

- An EndNote bibliography of pertinent titles on trust and related topics, including all articles identified as of interest
- Paper copies of the articles reviewed (or microfiche if paper copies are not available)
- A report on the literature review

1.6 Acronyms

CG	Command Group
DCIEM	Defence and Civil Institute of Environmental Medicine
NTIS	National Technical Information Service
OOTW	Operations Other Than War
WWW	World Wide Web

Chapter 2 – Method

2.1 Keywords

We developed a set of keywords for the literature search based on our experience with the pertinent scientific literature on trust, as well as relevant concepts related to teams and to the military.

The keywords were divided into several categories (see Table 2.1). This division allowed pairing of non-overlapping keywords for the search. Keywords could be combined in any way that yielded a productive number of references (i.e., not too large a number to inspect or too few to provide reasonable coverage of the topic). The "*core concept*" category was included for two reasons. First, the keywords in that category focused the search on topics directly related to trust. Second, they were intended to identify any other related theoretical approaches or conceptualizations that might have been developed.

Table 2.1. Keywords

Core concept	Trust	Belief, confidence, faith, reliance, dependence, assurance, certainty, stock, security, hope, expectation, integrity, cohesion, cooperation
Team	Team(s)	Group, crew, company, squad, contingent, corps, organization, relationship, connection, alliance, coalition, working (group), association, dyad, unit, section, platoon, company, brigade, diversity
Communication	Communication	Mutual understanding, openness, risk, vulnerability, (shared) values, predictability, dependability, reliability, loyalty, (tacit, implicit and explicit) communication, common ground, team dynamics, liking, construal, perception
Process		Growth, development, expansion, creation, maintenance, evolution, dissolution, deterioration, diminish, fade, antecedents, correlates, consequences, evolution
Leadership	Leadership	Authority, responsibility, leadership style, experience, ethics, honor
Command	Command	Authority, standard operating procedures, intent, directive, orders
Organization	Organization	Army, navy, air, hierarchical, rank, specialty, civilian, military, lateral, arms (e.g., infantry)
Team Performance, Measurement	Performance, Measurement	Trust differentials, scale, questionnaire, inventory, test, indices, indicators, team performance
Issues Related to Trust		Culture, stereotypes, attitudes, close relationships, intimate relationships, aptitude, interest, personnel selection, team building, training, morale, mental models

2.2 Databases

Searches were conducted of the following databases and sources:

- PsycInfo
- National Technical Information Service (NTIS)
- Canada Institute for Scientific and Technical Information
- ABI/Inform
- World Wide Web (WWW)

PsycInfo is a department of the American Psychological Association (APA) that offers products to aid researchers locate psychological literature. Their database is based on Psychological Abstracts and contains non-evaluative summaries of literature in psychology and related fields (e.g., human factors, education, business and social studies). The database contains over one million electronically stored bibliographic references with authors, titles, publication information, and abstracts or content summaries, covering material published in over 45 countries since 1967. References include journal articles, dissertations, reports and book chapters.

NTIS is an agency of the U.S. Department of Commerce's Technology Administration. It is the official source for government sponsored U.S. and worldwide scientific, technical, engineering, and business related information. The database contains almost three million titles, including 370,000 technical reports from U.S. government research. The information in the database is gathered from U.S. government agencies and government agencies of countries around the world.

CISTI houses a comprehensive collection of publications in science, technology, and medicine. It contains over 50,000 serial titles and 600,000 books, reports, and conference proceedings from around the world.

ABI/Inform is a business and economics database that indexes and abstracts the business periodical literature from 1971 to the present.

2.3 The Search

We searched databases by applying keywords from different categories in combination. For example, we combined a keyword from the Core Concept category with one from the Team category. The results of this pairing were used to determine whether the combination needed to be redefined to be more or less inclusive. When a combination yielded too many references, we systematically added keywords from other categories to focus the search. When the combination yielded too few references, we dropped one of the keywords from the combination or replaced one keyword with a related term.

Another source of potentially relevant references was the set of articles obtained for review. We also identified articles cited in the reference lists of the articles obtained for the review on the basis of their potential relevance to trust.

2.4 Selection of Articles

The search of the databases generated approximately 300 titles and abstracts. We reviewed these and categorized each by its priority (high, medium or low) to the purpose and scope of the literature review. Priority was based on the extent to which the article seemed to apply to the main categories of keywords developed earlier (Table 2.1). Once titles and abstracts were prioritized, we identified the approximately 60 articles that were rated as highest priority and obtained as many of these as possible. We were able to obtain 50 articles for review.

2.5 Review of Articles

We read each of the 50 articles obtained for review in detail, taking notes. After reviewing approximately 30 articles, we developed a broad outline of the major issues. We used this outline to categorize the applicability of articles and to further focus review of the obtained articles.

2.6 Small Infantry Teams in Context

The focus of this research is the dismounted infantry section. The purpose of this part of the report is to outline the general nature of such groups and the types of tasks they may undertake. Dismounted sections may operate completely independent of vehicles or, more likely, perform tasks while temporarily dismounted from the armoured vehicle that normally transports them and their equipment and supplies. These vehicles may serve as radio communication centre, fire support source, or shelter, depending on circumstances.

Armies are organized by fighting specialty or Arm. Arms are sometimes divided into so- called combat arms and support arms. Combat arms include armour, artillery, engineers, and infantry, among others. The major unit of organization at the infantry level is the battalion of about 600 - 800 personnel, with equivalent sized units for other arms. These units will be grouped, together with other combat and support arm units, into larger units such as brigades, divisions, or corps. The largest standing unit within the Canadian army is a brigade group.

Members of the infantry perform basic fighting tasks: hand to hand and close range. Individual infantrymen use hand-held weapons such as rifles, machine guns, grenades, mortars, and anti-tank missiles. Organization in garrison is in sections (8-10 persons), then platoons (3 fighting sections plus a small headquarters section total about 30-35), then companies (3 platoons plus a small headquarters- total about 110) and ultimately, battalions (4 rifle companies plus a support company and a headquarters). For a variety of reasons, units will often be under-strength.

Canadian infantry are also organized by regiments which have local affiliations, following, more or less, a European or British tradition. In Canada, there are three full time or regular regiments: one located in the western provinces, one in Ontario and Atlantic Canada, and one in Quebec. Each regular regiment has three battalions making nine in total, although this number may change. In the last great wars, regiments might have as many as twenty or thirty battalions, sometimes with a training depot for each Regiment. Thus, there might be the 31st Battalion of a Halifax Regiment.

In addition to full time regular infantry units, there are a number of part time Reserve infantry units. These Reserve units are also organized by location and regiment and train as whole unit, but only deploy operationally as a unit in times of national emergency, or for disaster relief. However, individual members of Reserve units will often contract for prolonged periods to serve as members

of regular units. These contracts are usually for blocks of six months, but some people run several such contracts back to back over a period of years.

A section will be commanded by a sergeant, a platoon by a junior officer (e.g., lieutenant), a company by a major, and a battalion by a lieutenant colonel. Organization in the field will vary according to the type of mission. Missions may be divided into conventional warfare, or operations other than war (such as disaster relief or peacekeeping). Field organization for conventional warfare will remain the same as for garrison at platoon level or below but at the company level and above, grouping might involve close cooperation with other arms such as armour, engineers or artillery. For example, a combat team might comprise an infantry company, an armoured squadron, with an artillery battery. However, at the section and platoon level, tasks and organization will differ little.

As a group, membership of a Canadian infantry section will usually be all male. Average age of all combat arm soldiers is about 32 years, but members of a fighting section will likely be younger, possibly in the 19-25 age range, tending to stay about 5 years in an infantry section before moving to a different position, perhaps returning to lead a section. The section leader, commonly a sergeant, and the second-in-command will be older and more experienced than the rest of the section. The remaining, junior, members of the section will represent a mixture of age and experience but a typical junior infantry section member will be single and have less than 3 years service. Education will probably limited to high school grade 12 or lower. Infantry tasks and training require a high degree of physical fitness. The section will live together in a barrack building as part of the platoon. Some will be married and live in married quarters.

Training will comprise a basic initial training of some 26 weeks. This training is designed to socialize the new recruit into army traditions and provide basic infantry skills. These skills include tasks such as firing a rifle, preparing a defensive position, basic tactics for attack, defense and patrolling, reading a map and living in the open. Part of this time will be spent learning parade ground drills and dress codes. Later, as their career advances, an infantry soldier will undertake a variety of training courses in more specialist skills such as different weapon types, or tactical procedures and leadership skills. Some of these courses will be taken as individuals in classes comprising soldiers from other infantry units or even other arms. Other courses will be taken by the whole section as a group, as part of the battalion training cycle.

Depending on expected assignments, such as a six month tour of peacekeeping duty, the section will undertake, as part of the bigger unit of which it will be part (company or battalion), a more focused training program designed to prepare the unit for its anticipated tasks.

Typically, conventional warfare tasks are divided into offense or defense. Depending on the terrain (built up areas, hilly, forested, desert, etc), the nature and demands of these tasks can vary considerably. Most section offense and defense tasks are conducted by the platoon or company, though for some tasks (such as patrols or road check points), the section may work more in isolation. Tasks for Operations Other than War range from peacekeeping operations such as patrolling and operating check points to disaster relief tasks. Either type of operation can involve interaction with other national groups: military or civilian.

Members of a section will change over time as individuals are promoted, posted to other units, go on courses, fall ill or are wounded, or leave the service. One might expect the membership of an infantry section to turnover completely over a three to four year period. Membership changes are

likely to be less frequent during an operation (casualties aside), and more frequent during prolonged periods of training in garrison.

Consequently, section members have a great deal of experience in common and come to know each other well as a result of working and living together closely over a period of months, often under trying conditions. Army and regimental traditions foster such group loyalty and encourage a balance between compliance with explicit instructions and the exercise of initiative in pursuit of common, sometimes implicit, goals, especially when confronted by unforeseen circumstances.

Chapter 3 – Results

We obtained 50 articles for review. These articles were drawn from published journals and from military and government reports. The obtained articles covered a range of research areas, from which we focused on issues relevant to trust.

3.1 Domains of Research

The articles obtained for review came from a number of research areas:

- Behavioural Science
- Business/Organizational Theory
- Military

A number of the articles were drawn from studies of trust in the behavioural sciences, as researchers in this domain have spent a considerable amount of effort looking at issues of trust. Research and theory that explores trust in workplace settings also comprises a significant portion of this review. Although we searched specifically for articles related to trust in the military domain, studies of trust in the military domain appear to be somewhat limited. However, we were able to select several articles from this domain that provided insight into trust in small teams.

3.2 Secondary References

We identified a total of 54 secondary references. The references comprise journal articles and technical reports from the behavioural sciences, military research and business domains.

3.3 Structure of the Report

The first section of this report presents a conceptual overview of trust. The following three sections address the development of trust and reviews the factors likely to impact on trust in small teams. Subsequent sections address trust and leadership issues, as well as the effects of trust on group process and performance, followed by a discussion of how trust might be linked to the theory of Common Intent. The final two sections explore methods and measures which are currently used for studying trust, suggests methods and measures that could be used for the study of trust in small teams, and presents a research strategy and a plan for the study of team trust.

Chapter 4 – The Concept of Trust

Trust is not something that will occur by chance, and must be pursued with the same scientific rigor that is being used in the development of our arsenal of weapons.

Colonel Russell N. Cassel, Colonel, Air Force Retired (Cassel, 1993)

Military scholars have long recognized the importance of building a command climate of trust. Trust within infantry teams is frequently cited as associated with team cohesion, morale and esprit du corps (Cox, 1996; McCann and Pigeau, 1996). Moreover, trust has been posited to be an important contributor not only to positive command climate, but also to the actual performance and achievement of military teams (Cox, 1996; Ivy, 1995). As trust is linked with such critical aspects of military endeavor, it is imperative to understand the role of trust within the infantry unit. In order to begin to explore trust in small infantry teams, however, it is necessary to first lay the groundwork and examine the concept of trust from the existing literature on the scientific study of trust.

4.1 Defining Trust

Trust has long been argued to be an important contributor to the health and well being of social systems. Rotter, for example, has argued that "the efficiency, adjustment and even survival of any social group depends upon the presence or absence of...trust" (Rotter, 1980). Despite the important role that trust is seen to play in human activity, however, the scientific study of trust is in a relatively early stage of development (Rousseau, Sitkin, Burt and Camerer, 1998; Hosmer, 1995).

Trust has been explored from several perspectives by diverse academic disciplines. Research in the area of trust and automation, for example, has explored the dynamics of trust between humans and automated systems (e.g., Jian, Bisantz, and Drury, 2000). The role of social systems and institutions in promoting trust within society has been explored in institutional trust research. A strong body of work exists in the area of organizational theory, and has been devoted mainly to understanding the benefits of trust in work settings, both within and between organizations. In the realm of economics, trust has been studied as an economic exchange, and trusting behaviour has been depicted as the outcome of calculations of profit and loss. Personality theorists have focused on trust as an individual difference, and have emphasized the role of early experiences in determining one's ability to trust others throughout the rest of life (Rotter, 1980). Social psychology has examined trust within interpersonal relationships and work relationships in both dyads and groups, and has focused on the role of expectations in judgements of trust.

Although trust researchers in diverse disciplines have made progress in understanding trust within the framework that they use, this progress has occurred with relatively little integration between the various disciplines. As Lewicki and Bunker (1995) argue, "*There has been remarkably little effort to integrate these different perspectives or articulate the key role that trust plays in critical social processes*". Within trust research as a whole, a universally accepted definition of trust has yet to emerge. Trust theorists such as Hosmer (1995) argue that this inability to find a common definition, however, is perhaps not surprising considering the many contexts in which trust studied. Hosmer argues that because trust is used to understand topics ranging from individual expectations, interpersonal expectations, economic transactions, and the workings of social structures, it may to difficult to find one definition that adequately captures trust in each of these domains.

This argument is elaborated by Bigley and Pearce (1998), who argue that to attempt to find a universal definition of trust may be not only difficult, but also counterproductive. Bigley and Pearce argue that the diversity in definitions of trust in different areas of study is a product of "*meaningful and substantive differences*" in how trust is understood within each of these domains that should not be obscured. A definition that includes all of the complexities of trust within each domain is likely to be overwhelming and one that omits them is likely to be too obscure to guide research efforts. Rather, Bigley and Pearce (1998) propose that the common threads that do exist in the various conceptualizations of trust (e.g., the issue of actor vulnerability is inherent in most domains of study) should be used to guide research in each area. This would appear to be the ongoing resolution of trust researchers and theorists. Although recognizing the important differences in how trust is conceptualized within each area, trust theorists also argue that there is considerable agreement on the key components of trust (Rousseau et al., 1998).

This review touches on relevant work on trust from several domains of study. As the context of interest in this review is small teams, however, the prominent focus is on trust research and theory from the social-psychological and organizational domains of study. These two domains of study focus on dyadic relationships, groups, and trust in larger collective settings, and these levels of analysis are most relevant to the context of small infantry teams. Although these two areas study trust at different levels, there is a good deal of consistency in how interpersonal trust in both personal and work relationships, and how trust within organizations is conceptualized.

A definition from organizational theory, for example, defines trust as, "*the willingness of a party to be vulnerable to the outcomes of another party based on the expectation that the other will perform a particular action important to the trustor, irrespective of the ability to monitor or control that other party.*" (Mayer, Davis and Schoorman, 1995). In an influential definition from the literature on close relationships, Boon and Holmes (1991) define trust as "*a state involving confident predictions about another's motives with respect to oneself in situations entailing risk*".

Both of these definitions suggest that, at its core, trust is based on expectations of how another person is likely to behave. In close relationship theory, expecting that another person will behave consistently and positively toward us is critical for developing trust. The decision to trust, as Boon and Holmes (1991) point out, is affected by more than just what we believe trust partners will do in the future. In making decisions to trust, the perceived motives of trust partners are also relevant. In order to trust another person, it is important to believe that this person is uniquely motivated to behave positively toward us. This knowledge allows us to willingly accept the risk of being vulnerable to another person. In the interpersonal trust literature, decisions to trust are based not only on beliefs that trust partners will behave positively, but that they are uniquely concerned with our welfare and devoted to acting benevolently and unselfishly toward us (e.g., Holmes, 1991).

At an organizational level, issues of positive motives and benevolence are still seen as integral to trust in some relationships, but the dominant emphasis within this domain is on trust-related behaviours, and on the need to work together and to behave cooperatively (Rousseau et al., 1998). Work within this domain also seems to emphasize the role of skills and competence in determining the trustworthiness of another person. Moreover, as the Mayer et al. (1995) definition emphasizes, trust sometimes involves making oneself vulnerable to another person not because we believe that they care uniquely about us, but because this person may perform an action that we care about. Within the organizational study of trust, then, trust is seen as occurring for both interpersonal and instrumental reasons (Rousseau et al., 1998).

As a whole, however, there is considerable agreement in the current trust literature that trust is best conceptualized as both a psychological state involving beliefs and expectations about the trustworthiness of others, and as observable choice behaviour, in which one makes choices (e.g., agreeing to engage in a business transaction) which put trust into action. The following sections review trust from both perspectives.

4.2 Trust as a Multidimensional Psychological State

In many ways, trust is a cognitive process. Trust theorists argue that the process of developing trust involves the creation of expectations and beliefs about others. More specifically, trust is seen as developing as we become increasingly able to predict the actions of others. These expectations derive from our experiences and interactions with others. Such interactions provide information and knowledge about what a person is likely to do in specific situations, and this information becomes increasingly elaborated into views of what people are likely to do on a consistent basis (Rempel, Holmes, and Zanna, 1985).

On the other hand, there has been increasing recognition in recent years that trust is not only a cognitive process, but also an affective process. In addition to building cognitive expectations about others, developing trust also involves coming to see others as personally motivated by sincere care and concern to protect our interests. (Lewis and Weingert, 1985; McAllister, 1995). Trust evolves as people make emotional investments in relationships, express genuine concern for the wellbeing of others, and come to believe that these feelings are reciprocated. In short, trust is not just cognition-based beliefs and expectations about how others are likely to behave, but also includes affective beliefs about their positive motivations and intentions toward us. Although affective bonds are frequently cited to be a part of trusting relationships, however, the degree of trust-related affect obviously varies in different relationships. Although some highly developed work relationships have high levels of emotion, others may have only minimal affective bonds (e.g., Lewicki and Bunker, 1996). As a whole, however, the current trust literature reflects strong attention to the cognitive aspects of trust, but broadening insistence on the role of feelings and emotions in determining trust.

4.3 Trust as Choice Behaviour

Trust is also conceptualized as observable choice behaviour. As a choice behaviour, trust has been understood from two different perspectives.

Trust as Rational Choice – The early scientific study of trust characterized trust behaviour as based exclusively on rational choices. In these studies, trust was operationalized as a decision to cooperate with another person (e.g., Deutsch, 1958). The earliest experimental studies of trust used the well known Prisoner's Dilemma game (Deutsch, 1958), in which two people are pitted against each other in a game designed to test their strategies for ensuring maximal joint or personal outcomes. Outcomes or payoffs in a Prisoner's Dilemma game are minimal if both parties cooperate, but are maximized if only one party cooperates. There are no payoffs if both parties fail to cooperate. As such, the decision about whether to cooperate or not is based exclusively on whether one's partner is expected to cooperate, that is, on whether competition or cooperation is logically the best way to maximize one's own outcome. In this context, then, decisions about whether to trust are based purely on calculations of profit and loss. If one expects a partner to cooperate, it would make sense to cooperate as well in order to achieve moderate gains. If one did not expect a partner to cooperate, a strategy of competition would yield maximal personal outcomes. According to rational

choice theorists, then, decisions about trust are exclusively rational decisions. There is clear agreement that trust can be based on rational choice behaviour.

Portrayals of trust as based only on rational foundations, however, have generally been declared inadequate by more recent trust theorists (e.g., Hosmer, 1995, Mayer et al., 1995, Kramer, Brewer and Hanna, 1996). Certainly, there are situations in which the decision about whether to trust another person or not may be based solely on rational calculations. In a simple business transaction, for example, it may be clear that trust will yield a certain benefit, and if this benefit is perceived to be more important than the risk of being taken advantage of, one may choose to trust. Mayer et al. (1995) argue, however, that to consider trust as a purely rational and cognitive activity ignores the context within which decisions to trust are most often made. Trust decisions do not occur in a sterile and purely rational realm, but are "*socially embedded*" decisions (Kramer, Brewer, and Hanna, 1996) that occur within complex social situations, and which are subject to a wide range of influences. As Kramer (1999) argues, "*trust needs to be conceptualized not only as a calculative orientation toward risk, but also a social orientation toward other people and toward society as a whole*". Decisions to trust most frequently occur not in rational isolation, but in the context of social systems and social experiences of the individual.

Trust as Relational Choice – The widely accepted alternative to depictions of trust as a purely rational choice has been to view trust choices as influenced by many different kinds of relational factors as well. Trust based on relational choices is seen as developing over time, and as a product of social interactions. During these interactions, people become increasingly adept at predicting the actions of others, and make choices based on these judgements. These repeated interactions are typically seen as involving the exchange of resources and a broadening scope of interdependence (Rousseau et al., 1998). Increased risk taking and successful fulfillment of expectations give rise to positive expectations about the intentions of other people and lead to even more risk taking (Mayer et al., 1995).

The current trust literature suggests a somewhat uneasy tension between depictions of trust as rational choice behaviour, and trust as a relational choice. Kramer (1999) suggests a way by which to reconcile these divergent perspectives, by arguing that ignoring the role of either rational choices or relational choice in trust situations diminishes the full meaning of trust. Kramer advocates a contextualist approach, whereby both forms of trust behaviour are given a prominent role in explaining trust processes. In some contexts, trust is more likely to be a calculative decision. In others, social influences are more likely to play a role. This integration of perspectives appears to be an important way to capture trust in its full dimension.

As a whole, then, trust is depicted as both a psychological state, involving expectations and feelings that lead to judgements about the trustworthiness of others, and as either rational or relational choice behaviour that puts these expectations and feelings into observable action. Trust, then, is both an internal psychological state, and is also manifested in trust-related behaviours.

4.4 The Need to Trust

The need to trust other people arises from the gains that accrue when we participate in an interdependent relationship. Deutsch (1958) argues that we will only trust in others if the benefits that we expect to receive are more than the perceived risks if our trust is betrayed. There would be

little gain to trusting others if we did not believe that this association would yield some positive benefits.

The motivation to trust other people varies widely in different contexts and in different kinds of relationships. Within close relationships (e.g., families, romantic relationships), the need to trust others is associated with a need to truly know others, and to achieve closeness and intimacy in the relationship. Trust is seen as critical in achieving the highest levels of mutual understanding, intimacy and security within close and personal relationships (Rempel, Holmes and Zanna,1985; Holmes, 1991).

The need to trust other people arises from the need to be able to predict and understand others. Trust is perhaps most meaningfully described as "*the reduction of complexity*" (Luhmann, 1988). Interpersonal trust theorists have argued that the need to trust arises precisely from our need to predict how other people are likely to behave. More specifically, the need to trust stems from the need to believe that others will behave consistently and be positively motivated toward us on a consistent basis. It is impossible to totally predict the actions and motivations of even people that we are extremely close to, and to know what they are likely to do in every situation. It is this tension between the need to understand how others are likely to behave, and the recognition that we can never really establish complete knowledge or certainty that gives rise to the need to trust. Trust reduces and simplifies this complex set of expectations, feelings and fears that we must otherwise use to attempt to predict in every new situation how people will behave. In making a decision to trust, we expect and believe that others will be predictable and will act in our best interests on a consistent basis. This decision, several trust theorists have argued, requires a "leap of faith" (e.g., Rempel, Holmes, and Zanna, 1986; Zaheer, McEvily and Perrone, 1998). A "leap of faith" is typically described as a conscious decision to trust that allows one to assume that others are trustworthy, even in the absence of definitive proof that this will always be the case. Taking a leap of faith allows one to suspend the belief that others may not be trustworthy, and requires believing and/or acting as if they can be trusted (Jones and George, 1998). The decision to confer trust is, trust theorists argue, the only way for trust to develop fully. In this sense, trust is a very much a paradox. One must first take the risk of trusting before trust can truly occur (Holmes and Rempel, 1989).

There are differences in how trust theorists conceptualize a leap of faith. Within the close relationship literature, faith is related to emotional security, and to feelings that one's trust partner will be caring and responsive (Rempel et al., 1985). In this context, faith is seen as having an affective component. A leap of faith has also been described as being primarily cognitive, as it involves a leap "*beyond the expectations that reason and experience would warrant*" (Lewis and Weingert, 1985). Despite these differences, however, theorists seem to agree that decisions to trust are not based on blind faith, but on the accumulation of information about a person's likely course of future actions and motivations. Among other things, this knowledge may pertain to their values, attitudes, past behaviours, and their competencies. As such, taking a "leap of faith", as reflected in the current trust literature, is not equivalent with making an uninformed judgement, or a purely emotional decision. Rather, it is a decision based on the recognition that even though others can never be completely known, trust is one way to reduce this persistent complexity and uncertainty. As Lewis and Weingert (1985) state "*to trust is to live as if certain rationally possible futures will not occur.*"

Even outside of close relationships, however, the need to trust is often just as critical. Within work relationships, for example, the need to trust is often predicated on the need to perform interdependent tasks. In work situations, it is impossible to know how others are likely to behave.

Yet, despite this uncertainty, the accomplishment of a common task is often dependent on the presumption that they will behave competently. If we can not make this assumption, and if we cannot perform the task alone, it may be impossible to accomplish the goal. The motivation to trust may stem not from benevolent feelings or the need to emotionally bond with another person, but from the need to cooperate with others (e.g., Mayer, et al, 1995). Within these kinds of relationships, trust is also used to reduce uncertainty about how others are likely to behave. In working cooperatively with someone, judgements of trust may be more influenced by perceptions of competence and skill, for example, than this person's benevolent motivations. Nonetheless, trust is still enacted in other to reduce the uncertainty, and taking a "leap of faith" is still necessary, as information about how others are likely to behave or perform is never complete.

Although trust is most often cited as stemming from the need to cooperate with others, and to have close relationships with others, it is important to note that trust theorists have also noted several other motivations that drive trust. People may trust others when sanctions are in place to guard against a breech of trust (Shapiro, Sheppard, and Cheraskin, 1992). If we know that another person will be punished if they violate our trust agreements, we are more likely to trust. Kramer, Brewer and Hanna (1996) also note that trust can also be used to elicit trust, that we can use it as a means to promote trusting behaviour from others, for example, when we require their help. In this sense, conferring trust is a good-will gesture that is predicated on expectations of reciprocity. Further, people may also trust others as a moral stance (Kramer, Brewer and Hanna, 1996). This motivation to trust may stem from religious beliefs or other personal moral imperatives. The need to trust other people, then, is a product of both situations and personal motives.

4.5 Situational Antecedents to Trust

Issues of trust and the need to make decisions about whether or not to trust other people only arise in the presence of situations that involve interdependence, risk, vulnerability and uncertainty. Trust theorists argue that these situational features are not necessarily sufficient for issues of trust to occur, but are necessary for issues of trust to come into play.

Interdependence is a necessary antecedent to trust. Interdependence is necessary when the interests of one party in a relationship cannot be realized without the other. Without being connected with another person, and without having one's outcomes in some way dependent on another person, there is no need to trust (Lewis and Weingert, 1985).

Risk is a critical antecedent to trust. Rousseau et al. (1998) define risk as "*the perceived probability of loss, as interpreted by a decision maker*". Risk is seen as a critical antecedent to trust because in trusting another person, positive outcomes are not assured. The reason to trust, however, is that choosing to incur the risk may yield positive outcomes.

Uncertainty is closely related to risk, and is seen as occurring because the motives, goals, and future actions of others are usually not fully known. Lewis and Weingert (1985), for example, argue that uncertainty is an important precursor to trust because "*If one were omniscient, actions could be undertaken with complete certainty, leaving no need, or even possibility for trust to develop.*" Uncertainty is a critical antecedent to trust.

Vulnerability is also seen as a critical antecedent to trust. As Luhmann (1988) argues, "*a fundamental condition of trust is that it must be possible for the partner to abuse the trust*". Unless

one is vulnerable to potentially negative outcomes, there is little reason to take the risk of trusting another person.

On the whole, there is considerable agreement within the current trust literature that issues of trust typically only arise in situations that require interdependence, but which also contain risk, uncertainty, and vulnerability. It is important to note, however, that what matters in decisions to trust is not the absolute levels of risk, vulnerability, and uncertainty in any given situation, but the individuals' perception of these situational factors (Mayer et al., 1995). What might represent risk to one person may not to another person.

A full understanding of the situational features that give rise to issues of trust is extremely important. These features help to both clarify further the nature of trust, and to distinguish trust from two other concepts with which it is frequently confused, cooperation and confidence. The next section uses these situational features to distinguish trust from these two concepts.

4.6 Concepts To Be Distinguished from Trust

It is important to explore two other concepts that have been used interchangeably with the concept of trust in the literature reviewed. Within the empirical literature reviewed, both researchers and theorists have noted that trust has frequently been confused with both cooperation and confidence (e.g., Mayer et al., 1995). Although closely related to each, trust is theoretically distinct from each of these concepts, as described below:

Cooperation – It is clear that trust and cooperation are closely related. Both are assumed to be associated with smooth social interaction and functioning (e.g., Rousseau et al., 1998). Moreover, there is some evidence in existing research that trust does make cooperation more likely (e.g., Brann and Foddy, 1988). It is also clear that the need for cooperation may also serve as the motivation for trusting behaviour (Kramer, Brewer, Hanna, 1996).

Since the early scientific study of trust began, however, trust has often been equated with cooperation. As Rousseau et al. (1998) argue, "*This blurring of the distinction between trust and cooperation has lead to a fuzziness in the treatment of behavior-based trust and in the construct of trust itself*". This "blurring" seems to have started with the first trust studies that explored patterns of cooperation in Prisoner Dilemma games. Choices to cooperate with others were conceptualized as representing and being wholly equivalent with trust (Deutsch, 1958).

As trust research has evolved, however, there has been consistent opposition to equating trust with cooperation, and some trust theorists have pressed for a distinction to be made between cooperative behaviour and trust as a psychological state (e.g., Hosmer, 1995, Mayer et al., 1995). It is possible for people to work cooperatively without trusting each other, and some empirical work in more complex decision making paradigms suggests that people may behave cooperatively for reasons other than trust, for example, as part of a larger strategy of competition (Hosmer, 1995). People may also behave cooperatively, not because of trust, but because control mechanisms such as employers or social norms dictate the need to work together cooperatively (Mayer, Davis and Schoorman, 1995). Cooperating with other people does not necessarily require trust. Put another way, cooperative behaviour can occur in the absence of vulnerability, risk and uncertainty, and may be guided by other concerns. Trust is distinct from cooperation.

Confidence – The concepts of trust and confidence are also frequently used interchangeably, in both the trust literature and in the military literature. Deutsch (1973; cited in Rempel, Holmes and

Zanna, 1985), for example, has defined trust as "*confidence that one will find what is desired from another, rather than what is feared.*" In the military literature, confidence is often used interchangeably with trust (e.g., Thomas and Barios-Choplin, 1996). As Luhmann (1988) has argued, the distinction between trust and confidence is a subtle but important one. Luhmann argues that confidence and trust are similar in that they both involve positive expectations that may or may not lead to disappointment. Trust differs, however, in that it involves a prior engagement on the part of a person to both recognize and accept that risk exists. Judgements of trust arise in situations in which people both recognize and accept that they are at risk and are vulnerable to negative outcomes when they confer trust on others. Trust has frequently been characterized as "confidence in the face of risk" (Lewicki and Bunker, 1996). This engagement and recognition of risk is not necessary for judgements of confidence in other people. In the case of trust, our personal investment in the situation is also higher than in the case of confidence judgements. As Luhmann argues, if our confidence is "disappointed", we tend to blame external factors. If our trust is violated, we make an internal attribution of blame. Disentangling trust and confidence is important for establishing clarity in the concept of trust.

4.7 The Dimensionality of Trust

In the available literature, trust researchers and theorists depict the dimensionality or structure of trust in several incompatible ways. As Rousseau et al. (1998) note, trust has sometimes been depicted as a single static point, and people are seen to either trust or not trust another person with no variation. Although noted by Rousseau et al. (1998), this depiction of trust is not prominent in the reviewed research. In the reviewed research, trust is most commonly depicted as a continuum. In this view, trust and distrust are the opposite poles of a single trust construct. A person may vary in the degree to which they trust another person, but any decrease in trust, by definition, moves them closer to distrust. This depiction of trust is evident in both the person-based model of trust presented by Lewicki and Bunker (1996), and in more recent work focused on creating a measure of trust/mistrust (Omedei and McLennan, 2000). A similar scheme by Jones and George (1998) puts unconditional trust, conditional trust and distrust on a single trust construct. Few theorists describe what the midpoint of the continuum represents, whether it represents an equal measure of trust and distrust, or whether trust is an issue at all at the midpoint. Nonetheless, trust is commonly viewed as a single construct representing trust and distrust.

The assertion that trust is a single bipolar construct is challenged by Lewicki, McAllister and Bies (1998). They argue that trust may be best represented as a single construct distinct from distrust, and as a continuum ranging from high trust to low trust. Distrust also ranges on a continuum from high to low distrust. Both trust and distrust are seen as moving toward certainty. Whereas trust is defined as "confident positive expectations about another's conduct", distrust is defined as "confident negative expectations". Lewicki et al. (1998) argue that the issue of the dimensionality of trust has yet to be adequately explored in existing trust research. Yet, the assumption that trust and distrust are a single construct is pervasive and reflects societal norms which depict trust as "good" and distrust as "bad". This kind of thinking, they argue, is outdated and does not accurately reflect the pressures in modern relationships. They argue that distrusting another person in some areas (e.g., skills, motivations) and trusting this person in other areas is more in keeping with how people actually make judgements of trustworthiness. Moreover, Lewicki et al. (1998) also argue that it is idealistic to presume that people should always trust others. Distrust in others is important to cultivate and to maintain, because relationships are increasingly complex and people are not

always predictable over time in every domain of interaction. It is important to maintain some degree of vigilance, or as Lewicki et al. assert, it is necessary to maintain "a healthy balance of trust and distrust".

Moreover, they also argue that trust and distrust, although seeming opposites, may actually have distinct antecedents and influences. Within personality research, a longstanding conceptual debate about whether positive and negative affect were polar opposites or two distinct concepts has been laid to rest by research showing them be distinct constructs with unique antecedents. Lewicki et al. (1998) argue, then, that the same clarity about the dimensionality of trust will need to be established in future trust research.

Although Lewicki et al. (1998) present a compelling argument, it should be emphasized that this depiction of trust is rare in the research that will be reviewed in this report. Trust theorists and researchers do seem to argue that trust is "good" and that distrust is "bad", and only a few theorists have noted that trust is not always entirely positive (e.g., Kramer, Brewer and Hanna, 1996). Moreover, few trust scholars appear to have come out firmly in support of the need for distrust. Unfortunately, the underlying assumptions about the dimensionality of trust in the current literature are typically unstated, and it is often difficult to know how trust theorists and researchers view this dimensionality. This, obviously, is a serious shortcoming to be addressed in future trust research and theory. In the absence of definitive of empirical work, the true structure of trust is an open question. We argue, however, that this issue has critical importance for the study of trust in military teams, and we explore this issue further in upcoming chapters.

4.8 Introducing Person-Based Trust and Category-Based Trust

Our everyday understanding of the word "trust" typically evolves around the notion of relationships with other people, and around the positive expectations and beliefs that develop as we come to know and trust other people. This personal form of trust involves interdependence, and the willingness to take a chance in trusting others that our perceptions of them are accurate. This form of trust is described with various terms in the current trust literature, including "historical trust" (Kramer, 1999), and "personal trust" (Luhmann, 1988). We have chosen to use the term "person-based trust", as it best emphasizes the fact that trust is conferred directly on a known person, as a result of interaction with this person.

The existing literature, however, also indicates growing interest in a different form of trust. Through category-based trust, trust can be conferred on other people in the absence of a history of direct and personal contact. Category-based trust in other people emerges as a sole product of their membership in groups or categories that we have come to trust, or from shared membership in the groups to which we belong. Even though trust is conferred on people, the basis of the trust is the category to which they belong. In the current trust literature, category-based trust is also called presumptive trust (e.g., Meyerson, Weick, and Kramer, 1996).

We argue that in order to understand trust within military teams, it is necessary to consider both person-based and category-based trust. Person-based trust has received the most attention within the scientific study of trust and is somewhat more established at both an empirical and theoretical level. Nonetheless, we argue that category-based trust is also an extremely important form of trust within military teams. This is true, in part, because small teams are especially subject to the processes of identification and categorization that give rise to judgements of category-based trust. The next two chapters explore the development of person-based and category-based trust in more detail.

4.9 Research Implications

The literature reviewed suggests that there is no widely accepted definition of trust, but that there are many commonalities in how trust is conceptualized. For the purposes of studying trust in infantry teams, the research relating to interpersonal trust, which has explored trust in both dyadic relationships and in groups, and the research exploring trust in work relationships and within organizations seem to best represent trust within a small team context. In studying trust in small teams, the following issues will need to be considered:

- It is important to focus on both the cognitive and the affective aspects of trust. Trust arises from expectations, but also from emotions and feelings. It is important to capture both dimensions in any research program.
- Previous efforts to study trust have typically measured either trust as a psychological state or trust as a choice behaviour. This has lead to ambiguity about whether trust or merely cooperative behaviour is responsible for the effects noted in previous trust research. In order to eliminate this ambiguity, it is important to explore trust as both a psychological process and as choice behaviour. Both feelings and beliefs about trust, as well as trust-relevant behaviour are critical to a full understanding of trust in small teams.
- As trust requires the situational antecedents of risk, vulnerability and uncertainty, it will be important to create these antecedents within an experimental setting. Creating high levels of risk etc. within experiments has ethical implications that will need to be addressed. Moreover, it is also critical to assess individual participant's subjective experiences of risk, as not all participants will respond similarly to the same situational factors.
- The distinction between person-based trust and category-based trust is a critical one for military teams, as such teams function in environments where categories such as rank and authority are particularly defined. The degree of trust given to other people will vary greatly as a product of the categories to which they belong. This distinction needs to be pursued further in order to understand trust within military teams.
- As trust is argued to facilitate predictions about other people, it is important to explore this issue in the context of small teams. It may be the case, for example, that teams with a high level of trust may be better able to perform together accurately and effectively because team members are better able to anticipate each others' actions. A key focus of this research is the extent to which trust enables "confident predictions" about other team members.
- It is currently unclear in the current literature whether trust and distrust represent the opposite poles of one construct, or are two separate constructs. This issue is important to explore in more detail.

Chapter 5 - The Development of Person-Based Trust

The most conventional form of trust is person-based trust. Person-based trust develops historically, as it takes time to establish the knowledge and experience necessary to trust another person. Building trust requires not only prolonged interactions with others but also direct and personal contact that allows for the sharing of life experiences, values, and beliefs. This chapter explores how person-based trust develops, reviews the factors that contribute to its development, and examines the implications of person-based trust for small military teams. This section begins by reviewing two models that describe the development of person-based trust.

5.1 Rempel, Holmes and Zanna (1985) Model of Person-Based Trust

Rempel, Holmes and Zanna (1985) propose a model outlining the development of interpersonal trust. Although this work explores trust in close personal relationships, it has been influential in shaping thinking about trust far beyond this limited domain. This model of trust development has been shown to be extremely influential because of its high level of detail in describing how trust develops.

Overall, Rempel et al. (1985) argue that trust in a significant other is related to the accumulation of different types of information about that person. The information gathered at each stage of a relationship changes as trust grows and as the relationship matures. As a whole, the process of developing trust moves from using behavioural evidence to gauge trust in the early stages of relationships to using attributions about a partner's motives and intentions as indicators of trustworthiness. At each stage, the experiences on which trust is based change as do peoples' interpretations of that experience. At all stages, the purpose of seeking and interpreting information with relationship partners is to establish a sense of security and trust in the relationship, and to reach confident conclusions about a partner's attachment to the relationship. Person-based trust develops as interpersonal relationships mature and is associated with progression through the following three stages:

Establishing Predictability – Rempel et al. (1985) argue that the early stage of developing trust in relationships is devoted to understanding and predicting the behaviour of others. More specifically, they argue that individuals come to trust their partners by watching their interactions while looking for consistent patterns of positive behaviour. These recurrent patterns of behaviours are used as a basis for judging the likelihood of similar behaviour in the future. Knowledge about what has rewarded and motivated others in the past improves one's ability to forecast how they are likely to behave in future situations. Put another away, accumulating information about how others are likely to behave allows for successful prediction of their actions. Being able to successfully predict that another person is inclined to behave in a positive way in a given situation increases the likelihood of trust as it suggests that one's trust partner is stable and consistent. This consistency reduces the risk and uncertainty inherent in a relationship and makes one less vulnerable to negative and unexpected outcomes.

Establishing Dependability – At the next stage of trust development, judgements about the trustworthiness of a partner are no longer based solely on their behaviours, but on the interpretation

of behaviour. As relationships develop, the behaviour of a trust partner is progressively viewed not just as a product of an isolated situation (e.g., she ran into a burning building to save a child), but comes to be attributed to a person's broader motives and dispositions (e.g., she ran into the burning building to save a child because she is a kind and compassionate person). Viewing a partner's behaviour as motivated by dispositional rather than situational factors leads to trusting that they will be dependable in the longer term. At this stage of trust development, then, discrete behaviours are integrated into a coherent view of a person and come to be understood as the product of a person's true motives.

Rempel et al. (1985) point out, however, that a person can be predictable and dependable in a relationship without instilling trust in their partner. This may occur because not all behaviours are given equal weight in these attribution processes. Behaviours that specifically speak to a partner's intrinsic motivation to act unselfishly and benevolently in the face of risk receive the most weight in making attributions about their trustworthiness. Running into a burning building to rescue a child is not likely to promote trust if it is perceived as an action aimed at garnering personal acclaim and attention. In order to promote trust, dispositional attributions about the dependable behaviour of others need to be uniquely tied to feelings of attachment. In short, people must feel that their partners act in a benevolent way because they care and for no other reason.

Establishing Faith - Predictability and dependability on their own do not lead to fully developed trust within relationships, as even prolonged experience with another person does not allow prediction about every contingency. It is impossible to observe even significant others in every potential situation, so it is impossible to be able to predict their behaviour and motivations in every realm. Rempel et al. (1985) argue that establishing the highest level of trust requires placing "faith" in another person. Although the concept of faith is typically used in a religious context, Rempel et al. use this term "*to capture the essence of a trust that is not securely rooted in past experience*". Faith, they argue, reflects an ability to "*go beyond the available evidence*" with assurance that the trust partner will be responsive to one's needs. Developing faith requires going beyond both coding at the behavioural level or even a dispositional level, and stems from an attributional process focused on motives and intentions. In an interpersonal context, faith develops when one is convinced of a trust partner's unselfish affection and concern. At some point, Rempel et al. (1985) argue, one simply needs to go beyond what is known about another person, and believing and expecting the best of them, decide to place one's faith in that person in spite of an uncertain future. This confidence in spite of risk, they argue, is trust.

According to this model, then, developing trust in another person requires having the time to interact, to develop a personal history, and to see that this person's behaviour is guided and motivated by consistent, benevolent and genuine concern. Establishing predictability, dependability and faith enables trust and leads to security and confidence in the relationship. It is important to note, then, that this model shows trust as having a cognitive base, as trust development involves the exchange and processing of relevant information. At the same time, however, as trust is predicated on feelings of security and confidence in another person, it also has an affective or emotional base.

5.2 Lewicki and Bunker (1996) Model of Person-Based Trust

Recognizing that the Rempel, Holmes and Zanna (1985) model provides an excellent account of the trust development process in intimate relationships, Lewicki and Bunker (1996) have extended this model to the realm of work relationships. They argue that, although the development of trust in

professional work relationships does not typically involve the intense emotionality of intimate relationships, many of the processes of evaluation and information exchange that occur in intimate relationships also occur in work relationships. Within work relationships, trust is seen as progressing through three successive stages, as follows:

Calculus-based trust is developed at the first stage of work relationships. This form of trust is not based on positive intentions toward others, but on one's assessment of the perceived costs and benefits of engaging in interactions with others. Lewicki and Bunker assert that calculus-based trust develops as part of

> *"an ongoing, market-oriented economic calculation whose value is derived by determining the outcomes resulting from creating and sustaining the relationship relative to the costs of maintaining or severing it."*

Trust is conferred on others at this early stage of work relationships because of the rewards one expects will accrue if they trust their partner in the relationship. Lewicki and Bunker argue that trust at this stage is based on assuring consistency of behaviour and on maintaining control over the relationship, and is maintained because negative outcomes are seen as likely to occur if trust is violated. In the context of business relationships, for example, reputation may be one reason that people may work to maintain the trust of others, as the cost of being perceived as having an untrustworthy reputation could be a serious liability.

Knowledge-based trust, on the other hand, develops within some work relationships and involves establishing predictability and dependability. Lewicki and Bunker argue that people become increasingly able to predict what others will do through increasing observation of their behaviour. Similar to the Rempel et al. (1985) model, this model also proposes that successful prediction allows for increasing interpretation and attribution of another person's behaviours, and that discrete behaviours are increasingly integrated into a more coherent view of a person.

Lewicki and Bunker elaborate further on the processes that people use to establish knowledge-based trust. They argue that people use both communication and "courtship". Communication is seen as a critical means of building trust through the exchange of information about personal preferences, experiences and approaches to solving problems. "Courtship" refers to behaviour that promotes relationship development. This may include questions directed at learning more about one's trust partner and observing their behaviour in varying social situations. Developing knowledge-based trust, then, is associated with gathering information about trust partners in different contexts, and with working to build and develop the relationship.

Identification-based trust is the highest form of trust, and is based on identification with another person's desires and intentions. Lewicki and Bunker argue that as relationships develop, increasing knowledge of another person and information about their behaviours, preferences and motives lead to identification with this person. The Oxford English Dictionary defines identification as the "*association of oneself with the feelings, situation, characteristics etc. of another person or group of people*". As people assimilate parts of a trust partner's identity into their own identity, the risk and uncertainty inherent in relationships also decrease. Further, Lewicki and Bunker (1996) also argue that identification-based trust allows trust partners to "*think like' the other, 'feel like' the other, and 'respond like' the other*". In addition to the accumulation of knowledge and experience, developing a collective identity (e.g., company logos, etc.) facilitates establishing identification-based trust with others; co-location and proximity, joint projects and goals, and commitment to commonly shared

values. As a whole, then, Lewicki and Bunker argue that identification is the apex of interpersonal trust in work relationships.

This model predicts that different kinds of work relationships will achieve different levels or forms of trust. At the early stages of a relationship, trust is calculus-based, and is predicated on the calculation of costs and benefits of engaging in trust. Many work relationships are able to establish this early form of trust. Whether trust moves beyond this early stage depends on whether a higher level of interdependence is dictated by the demands of the situation and of the relationship. An even fewer number of relationships progress to the knowledge-based trust stage, where efforts are directed toward gaining increasing knowledge of one's trust partner. Even fewer relationships progress to identification-based trust, due to the effort and high level of interdependence dictated by this form.

5.3 Overview of the Models

As both models and other theoretical work show (e.g., Mayer et al., 1995), there is overwhelming agreement that the development of person-based trust is historical. In general, trust is seen as developing over the course of time, as gradually building through progressive stages as relationships become more elaborated and interdependent, and is typically seen as reaching a more stable but constantly dynamic level as relationships mature.

In both models, the accumulation of information plays a key role in the development of person-based trust. Both models suggest that working to predict the behaviour of others, and attributing positive and unselfish motives to others are critical steps in building trust. As neither model has undergone testing, however, the issue of whether predictability and dependability are used specifically in the service of trust is important and requires direct verification. Although this review did not find strong empirical evidence that prediction is used specifically in the service of developing trust, social learning theory (Rotter, 1982) is based on the premise that people work to understand others through observing their behaviour, and through understanding what rewards and motivates them. As making judgements about the trustworthiness of others is only one component of how people learn about others, it seems reasonable to assume, as trust theorists have, that people use prediction in order to establish trust. Nonetheless, this aspect of the person-based trust models still requires empirical verification.

Both models suggest that the ability to make attributions about the dependability of a trust partner plays an important role in the development of person-based trust. Attribution theory has generated an extensive body of empirical research showing the role of attributions in understanding others (for a review, see Jaspars, Fincham and Hewstone, 1983). There is some evidence that attributions play a specific role in preserving judgements of the trustworthiness of others. Work by Murray and Holmes (1996) for example, shows that people motivated to maintain their views of others that they love and trust may actively work to reinterpret negative behaviour in terms of less threatening dispositional attributes or causal explanations. A trusting wife may, for example, attribute her husband's lack of attentiveness to her to him being a hard worker whose attention is demanded by his job rather than imposing a less flattering portrayal of her husband as a disinterested spouse. Although this research speaks most directly to the issue of maintaining trust rather than developing trust, it does hint that attribution processes may play a similar role in building trust at the early stages of relationships as well.

Although the models presume different ending points for highly developed interpersonal trust (e.g., faith vs. identification), they are similar in arguing that trusting relationships involve a high level of intimacy and acceptance of vulnerability. The Lewicki and Bunker (1996) notion of identification, however, is much more widespread than the notion of faith. Lewicki and Bunker argue that identification with others leads to acting, feeling, and thinking like another person. Although it is appealing to imagine that trust could lead to complete synchronization with another person, the available empirical evidence does not support this assertion. Certainly, there is clear and consistent evidence that identification with others does impact on interpersonal judgement, and can lead, for example, to people favouring their own group over other groups or believing that people in one's own group are more trustworthy than people outside the group (Brewer, 1979). In this sense, there is support for Lewicki and Bunker's argument that identification does impact on thinking and feeling, but there is no evidence that suggests identification leads to complete behavioural synchronization. The argument that identification-based trust will enable people with whom they identify to completely substitute for each other is a claim not yet substantiated by empirical evidence. Nonetheless, as Lewicki and Bunker (1996) suggest, identification can play an important role in the development of person-based trust.

Both models also suggest that social interactions provide people with an opportunity to become more proficient at predicting others' behaviour. Having the time to interact with others also provides information about whether they are likely to be dependable and whether an emotional investment is likely to be safe. The models also argue that the need to trust arises in both personal and in work relationships and stems from the need to deal with issues of risk, vulnerability and uncertainty. Establishing predictability and being assured of others' consistently positive motivation are critical in forming relationships in both personal and work domains.

5.4 Linking the Models to Military Contexts

Taken together, the process of trust development presented by these models has extremely important implications within the military domain. Establishing predictability, dependability and identification are also likely to promote the development of trusting relationships for infantry team members.

At the level of the infantry section, soldiers work extremely closely with the 8 to 10 other people. Relationships with other team members at this level are often extremely close, as team members spend long amounts of time together and are highly interdependent. Infantry team members need to cooperate on many team tasks, where the performance of the team as a whole depends on the competence, effort and motivation of each individual team member. Being able to predict how other teammates will perform in everyday tasks, as well as in the context of difficult missions is a critical determinant of trust. If team members see other members of the team as displaying consistent positive behaviours, and if they can form confident predictions of how others are likely to behave in both everyday circumstances and in the course of operations, person-based trust may develop.

At the platoon level, too, platoon members have common living areas and also spend considerable time together. A soldier's relationships with other soldiers in one's section and platoon provide perhaps the best environment for the development of person-based trust, as these relationships are typically the longest, the most direct and the most personal. These relationships also have the highest range of group activities, as well as everyday and operational experience. This suggests that the person-based trust may be more easily developed in these contexts.

On the other hand, the fact that trust develops over the course of time has profound implications for infantry teams due to the high turnover rates common in such teams. Turnover may occur as the result of promotions, changes in posting, involvement in courses, illness or fatalities, or departures from the service. On the whole, an infantry section may experience complete turnover of personnel in a three to four year period. This level of turnover, of course, is likely to be deleterious to the development of person-based trust. Although it is unclear from existing research how long trust takes to develop, the trust development processes described require substantial time and interaction. Turnover in an infantry setting will likely impact negatively on the development of trust. This analysis suggests that ensuring as much stability as possible within small infantry units may be an important means by which to promote the development of person-based trust.

The fact that person-based trust requires both history and direct contact also has important implications for the prospect of developing trust beyond the section and platoon level. The infantry soldier is also a member of the larger company and battalion and has varying levels of contact and exposure to people at those levels. As the length and frequency of exposure to most members of the battalion would typically be less than in the case of one's own section team, for example, person-based trust would likely be more difficult to develop in the context of the larger organization. Similarly, due to the sheer number of people at higher organizational levels, it may be difficult to have the direct and extended contact necessary to establish predictability and dependability in others. The fact that trust may be more difficult to develop, of course, does not mean that it could not develop, given the proper amount of time, motivation and opportunity. Systematic creation of opportunities to acquire common experience of others within the larger organization will help develop the confident predictions and increased knowledge needed to establish trust.

In addition to the factors that contribute to person-based trust specified in these models, however, there are also several other factors that impact. The next section examines some of the most important factors impacting on the development of person-based trust.

5.5 Factors that Affect the Development of Person-Based Trust

Theorists and researchers have argued that factors related to qualities of the trustor, the trustee, and features of their interactions influence judgements of trustworthiness and the likelihood of engaging in trusting behaviour.

5.5.1 Qualities of the Trustor

Propensity to Trust – A person's tendency to trust others is conceptualized by personality researchers as a stable trait that develops early in life, through socialization and developmental life experiences. Rotter (1980) argues that people naturally have trust-related experiences early in life. These experiences form the basis of general beliefs about people, which are generalized from one person to another over the course of time. What develops, Rotter (1980) argues, is a "*generalized trust in others*", that is consistent across time and across situations and that shapes one's ability to trust others throughout the rest of life. This propensity to trust, of course, can either facilitate or hinder trust development processes.

A wide body of research shows that people do differ in their general propensity to trust other people (e.g., Sorrentino, Holmes, Hanna and Sharp, 1995). Pre-existing differences in propensity to trust on their own, however, have shown to have only limited value in predicting trust in specific

relationships (Holmes, 1991). It is difficult (if not impossible) to separate people's generalized expectancies about others from the context of their interactions. Although interactions start with two players (both of whom have generalized expectations about trust), these people influence each other. One person who is inherently distrustful, for example, may bring distrusting behaviour into the relationship, and these behaviours may give rise to similar behaviours in their partner, which may or may not be consistent with the partner's propensity to trust. What emerges from an interaction, then, is not solely a product of individuals' propensity to trust, but also the product of their dynamic interactions. As research and theory have developed, individual differences in propensity to trust have come to be viewed and used as moderators of trust in relationships, rather than as direct determinants of trust (Holmes, 1991).

In a military context, the extent to which a soldier develops trust in others, of course, will depend not only on the levels of contact and time within these relationships, but on his individual propensity to confer trust.

Trust Histories – A person's trust history also impacts on willingness to confer trust on others. The outcome of previous trust relationships leads to a priori expectations, attitudes, feelings, motivations and behaviours related to trust when beginning new relationships. Kramer (1999) describes the outcomes as a person's "*interactional history*" and argues that these histories play a major role in how people approach the issue of trust in future relationships. A person who has had his or her trust violated in a past relationship, for example, may have highly negative beliefs about others, and may resist cultivating trusting relationships in the future. Trust theorists have also argued that such expectations can be self-fulfilling. A person having negative expectations about the trustworthiness of others may display hostile behaviour, which when reciprocated by others, provides confirmation of the inherently untrustworthiness of others (Holmes, 1991).

A person's trust history, of course, will often be very closely related to one's propensity to trust, as a generalized belief that other people are trustworthy may be a good predictor of successful outcomes in trusting relationships. This is, however, not always the case. A person with a high level of trust in others at early developmental stages may not always have positive trust experiences with others in later stages of life. A trust history may also change over time, as people move through different kinds of relationships. One's trust history, which may show considerable variability throughout life, is distinct from one's generalized propensity to trust, which is seen as a stable trait across time and across situations.

The trust that infantry soldiers confer on others will likely depend to some extent on their trust histories and on the beliefs, feelings, attitudes and expectations about trust that derive from previous experience. Whether a soldier judges others to be trustworthy or even begins the trust development process may well depend on the degree of success in previous trust relationships. It is not clear from the existing literature whether all kinds of previous trust relationships are expected to impact equally or whether a person's trust histories from personal relationships exert the same impact as histories in more instrumental work relationships.

Ongoing Trust Experiences – Trust theorists also emphasize the dynamic nature of trust, and the fact that people's interactional histories are continually updated by their ongoing trust experiences (Kramer, 1999; Mayer, Davis, Schoorman, 1995). There is evidence, for example, showing that the act of engaging in trusting behaviour can also promote trust. In a study by Koller (1988), participants were asked to decide whether or not to lend either an inexpensive scientific book (low-risk condition) or an expensive scientific book (high-risk condition) to a fictitious student. After

having made their decision, they were asked to rate their level of trust in their "partner". Participants in the high-risk condition exhibited considerably more trust than did participants in the low-risk condition, suggesting that risk-taking behaviour may promote trust.

This study raises the intriguing possibility that engaging in risky situations with others may lead to trust developing, not from mutual interaction and experiences, but from the attribution of one's own behaviour as being indicative of trust. Bem's self-perception theory (1967) argues that behaviour can be used as a basis for interpreting previously unrecognized internal states. The act of hitting a wall may be used as a cue in a person recognizing that she is angry. It might be the case that engagement in a risky situation may provide cues that are used in judging one's own level of trust toward another person.

The fact that trust histories have been shown to affect the development of trust in ongoing relationships suggests that high levels of turnover may put trust in military settings somewhat at risk. Having worked to establish trust with fellow team members, only to have them move to other postings or to see them injured in the line of duty may discourage soldiers from working to establish new relationships with others. If trusting relationships are frequently lost, the motivation and the commitment needed to continue working toward these relationships may diminish over time.

Values – Values are increasingly identified by trust theorists as influencing the development of trust in others (e.g., Jones and George, 1998; Doney, Cannon, and Mullen, 1998). Jones and George (1998) conceptualize values as "*general standards or principles that are considered intrinsically valuable ends (e.g., honesty, reliability)*. Jones and George (1998) argue that values provide guidelines for many aspects of human behaviour, and that a society's values can also play an important role in defining acceptable standards for trustworthy behaviour. Societal values and norms provide information and guidance about what a society deems to be important, and about proper behaviour in the midst of society. These societal values also tend to become incorporated into peoples' own personal systems of values. Theorists have argued that peoples' personal values may play a role in their interactions with others and influence the extent to which they confer trust on others (Doney et al., 1998). One way that values may influence the development of trust is by providing standards by which to judge whether or not another person is likely to be trustworthy (Jones and George, 1998). A person seen as having dissimilar values, and as being guided by different principles, may be considered to be a less than favourable object of one's trust. Similarly, when two people have shared values, they are more likely to form a trusting relationship because values influence the route that people take in coming to trust others. As such, people with similar values are more likely to use the same processes to establish trust. Shared values and norms, for example, may influence the attributes that are seen as most important in understanding others (Porter, 1997).

It is important to note that values are closely linked to attitudes. Jones and George (1998) maintain that values and attitudes are very similar but values affect trust at a wider level than do attitudes. They argue that whereas "*values provide standards of trust that people strive to achieve in their relationships with others, attitudes provide knowledge of another person's trustworthiness*". Both values and attitudes, then, are likely to affect the development of trust in other people.

Just as trust theorists have given values a prominent role in social interaction, the military has also identified the importance of values in guiding how soldiers perform in military settings (e.g., McCann and Pigeau, 1996). Within a military context, values are also likely to influence the development of person-based trust. Soldiers' judgements about the trustworthiness of others, for

example, are likely to be influenced by the values espoused by their leaders, and by the values of military system in which they perform. Within small teams, the extent to which soldiers' value systems are similar is also likely to facilitate trust, as common values provide information that speak to another person's predictability. Knowing that honesty is an important value for another person, for example, allows predictions about the likelihood of this person acting in a deceitful way in a given situation. This analysis suggests that establishing a military climate with strong values and principles will facilitate the development of person-based trust in small teams.

The lack of available empirical literature in this area suggests that the relationship between a values and trust remains an area yet to be widely explored by trust researchers. Nonetheless, this area is likely to receive considerable attention in future research.

5.5.2 Qualities of the Trustee

What factors do we consider important in judging the trustworthiness of others? Understanding the factors related to the perceived trustworthiness of others has been the subject of considerable debate among trust theorists. A careful analysis by Mayer, Davis and Schoorman (1995) has shown the many indicators of trustworthiness used by theorists and researchers to be most frequently represented by the following 3 factors:

Competence - Competence is a key factor in determining the degree to which trust will be conferred on another person. A person is more likely to be trusted if he or she is seen to possess the skills, characteristics, and competencies to allow her to meet the demands of a given situation (Mayer et al., 1995). From the perspective of the trustor, then, partners who have a high level of ability are more likely to be able to use their skills and abilities to lessen the risk of negative outcomes and vulnerability to negative outcomes for both parties. There is some evidence that people who are seen as competent in a given area are more likely to be trusted. Work in the area of source credibility, for example, suggests that when people are judged to be competent and reliable, the information that they provide to others is judged to be more trustworthy and is more influential (Giffin, 1967). Competence is an important determinant of person-based trust.

Judgements about the competence of others are often argued to be inherently domain-specific (Mayer et al., 1995). We may have a high level of trust in a person's ability in one skill area, but have little trust that they are capable in another area. Many important questions about the relationship between trust and competence, however, are left unanswered by the available research. There are obviously many different ways in which people can be competent, including technical skills, social skills, or emotional skills. It is unclear how these judgements of competence are combined to form an impression of trustworthiness at a broader level.

Benevolence – Benevolence is defined as "*the extent to which a trustee is believed to want to do good to the trustor, aside from an egocentric profit motive*" (Mayer et al., 1995). Judgements of benevolence involve seeing others as genuinely concerned about our welfare, independent of their own self-interests.

There is some empirical evidence suggesting that benevolence plays a role in judgements of trust. A study of intimate marital relationships by Rempel, Holmes and Zanna (1985), for example, showed that trust was strongly related to beliefs that a partner was intrinsically motivated to be in the relationship, but was not related to beliefs that one's partner was motivated by instrumental or extrinsic concerns. Judgements of benevolence are closely related to the interpretation of another's actions as being motivated by positive intentions.

Integrity - Integrity is frequently conceptualized as a perception that another person adheres to a set of principles that a trustor finds acceptable (Mayer et al., 1995). More specifically, integrity in trustees has typically been viewed as involving credible communications, a strong sense of justice, and consistency of word and action (Mayer et al., 1995).

There is some evidence that integrity is an important determinant of person-based trust. In a study by Korsgaard, Schweiger, and Sapienza (1995), for example, leaders who were perceived as showing fairness and equity in considering the input of their subordinates were more trusted by their subordinates. The perceived integrity of a trustee may play an important role in the decisions that others make about their trustworthiness.

A study by Schindler and Thomas (1993) provides additional empirical evidence that these dimensions are most important for people making judgements about others in the context of work relationships. This work explored the most important dimensions of trust in a variety of work relationships, including relationships with co-workers, subordinates and supervisors. In relationships with supervisors, subordinates and peers, integrity was rated as the most important dimension in trust. Competence, defined as technical and interpersonal skills, was only slightly less important, with loyalty, defined as benevolent motives being the next most important. As a whole, the reviewed literature shows widespread consensus that competence, benevolence and integrity are the three main factors in trust judgments about specific others in varying kinds of relationships and contexts.

Trust theorists also argue that judgements of trust are typically based on consideration of all three factors (Mayer et al., 1995). Believing that a team member has a high level of integrity may not be meaningful in determining trust unless that team member is also seen to be competent in the domain of risk. Similarly, viewing one's team members as having the best of intentions and a high level of benevolence toward us will not build meaningful trust without believing in their abilities in a crisis. Person-based trust is, in part, predicated on perceptions of others' competence, benevolence, and integrity, and is best viewed as a continuum rather than as an all-or-nothing decision (Mayer et al., 1995).

The relative weight given to competence, benevolence and integrity in making judgements about others is influenced by the situation. Highly developed technical skills in another person may be considered to be extremely important when assembling an explosive device, but may be seen as secondary to highly developed benevolence and sensitivity to the needs of others when facing an angry crowd. The context of a relationship will determine which dimension(s) are most salient and which most strongly influence judgements of trust (Mayer et al., 1995).

Importantly, judgements about the competence, benevolence and integrity of others are not static, but are constantly updated by the outcomes derived from trusting others (Mayer et al., 1995). After having placed trust in another person, continuing to assume that this person is competent is dependent on receiving confirming information. Judgements of trustworthiness, then, are constantly altered in response to ongoing feedback about a person's competence, integrity and benevolence.

In a military context, judgements of others' trustworthiness are also likely to be affected by the extent to which they are seen as competent, benevolent and as having integrity. Accurately assessing the trustworthiness of others takes on an importance in military teams that exist in few other work situations, as an inaccurate assessment about the abilities or motivations of a fellow soldier could be fatal. It is important that judgements of competence, benevolence and integrity are constantly

updated in response to one's experiences with another person, as judgements of trustworthiness will be more accurate if information about one's actual performance affect subsequent judgements of that person.

5.5.3 Qualities of the Interaction

Communication – As noted earlier, Lewicki and Bunker (1996) have argued that communication in relationships may promote trust, as open communication helps to provide evidence that speaks to a partner's trustworthiness. Other theorists point out that communication may also help to build trust indirectly. As communication provides a basis for continued interaction in a relationship, this interaction makes the development of common values and norms more likely (Doney et al.,1998). Das and Teng (1998) also argue that the kind of information exchanged during interactions with others can also play an important role in building trust. Sensitive and/or unsolicited information may provide evidence of both goodwill and a desire for deepened relationships.

In infantry teams, open communication is also likely to be a factor in promoting person-based trust, as sharing common values and life experiences facilitate the trust development process. At the same time, this suggests that using communication to form person-based trust within infantry teams may present a challenge.

Similarity – Similarity is frequently cited as promoting trust (McAllister, 1995). There are, of course, many ways in which people may be similar, including age, sex, marital status, as well as cultural or ethnic background, life experiences, goals, attitudes and values. Similarity may promote trust through several different mechanisms. People may be more attracted to people that are similar (Berscheid and Walster, 1978; cited in Mayer et al., 1995), and this attraction may lead to more global positivity about all of their qualities, including trustworthiness. Moreover, perceived similarity is also associated with trust (e.g., McAllister, 1995). If people see others as similar to themselves, they may be more likely to trust them because similarity may provide a basis for assuming that other's behaviour will be similar to one's own (Kramer, Brewer, and Hanna, 1996).

This suggests that similarity may be an important means by which infantry teams build trust. Infantry team members, for example, typically all share a common work function. Moreover, small infantry team members also have many experiences in common (e.g., basic training). Time spent together provides the opportunity to share common military life experiences which is also likely to build trust. Taken together, the similarities inherent in many infantry teams may facilitate the development of trust. On the other hand, a lack of similarity may also hinder trust development in some military contexts. It may be more difficult to establish trust with members of an artillery team, for example, because of the differences in work experience and function.

Shared goals – Shared goals also facilitate the development of person-based trust. Shared goals may also facilitate trust by providing evidence of common values and priorities (Jones and George, 1998). More globally, understanding a person's goals and the relative importance of these goals provides information about future behaviour, and increases their predictability. The enhanced predictability associated with goals may enhance trust.

Despite its plausibility, however, the assertion that shared goals facilitate trust has yet to receive extensive empirical attention. A study by Porter and Lilly (1996), however, does provide some evidence of a link between shared goals and trust within strategic teams. They explored the effects of conflict, task commitment and trust on team performance and showed that high levels of task commitment were strongly positively associated with trust within strategic teams. Porter and Lilly

assert that when group members see that other team members are inspired to excel as a team, their trust in the group increases, as this commitment is likely to predict enhanced effort. A shared goal may positively influence trust in teams.

The relationship between shared goals and trust is of particular importance in the military domain. If trust is facilitated by team members sharing a common goal, then ensuring that team members see themselves as working together toward a common goal is one critical way to build trust in both small infantry teams, and in military contexts generally. Therefore, as military theorists have argued (e.g., McCann and Pigeau, 1996), it is critical for military teams to have a clear direction and a common vision of what they hope to achieve as a team. The relationship between shared goals and trust is an extremely important topic for future research.

5.6 Summary

As a whole, the development of person-based trust is a complex process. Many factors are seen to influence the development of person-based trust, but strong empirical research that would validate all of the factors noted by theorists as likely to play a role in person-based trust is currently lacking. Moreover, it is currently impossible to isolate factors and to calculate the relative strengths of their contributions. As trust theorists and researchers recognize, it is important to test these models and to explore in more detail the factors that promote the development of person-based trust.

Within small military teams, trust is extremely important, due to the high need to cooperate on many team tasks. In a very real sense, the competence, effort and motivation of each individual team member may impact on the ability to perform as a team. Research and theory about trust suggest that small infantry teams represent an environment that is, in many ways, conducive to the development of person-based trust. Members of small infantry teams live and work together for extended periods, and often have shared training. This high degree of direct contact and personal involvement provides opportunities to establish effective communication patterns, and to gain information and knowledge about each other through observing behaviours. The small team setting also provides an extensive opportunity to observe each other in a variety of settings, to make attributions about other's motives, and to share values and beliefs with other team members. These features of small infantry teams are likely to facilitate the development of person-based trust.

Nonetheless, some aspects of the military do present challenges for the development of person-based trust. Turnover presents a huge obstacle to the development of person-based trust, as it prevents the long-term elaboration of relationships and emotional bonds needed to build trust. Moreover, direct and frequent contact between soldiers may not occur within larger military organizations (e.g., companies and battalions). This may preclude the development of personal trust across such organizations, as opportunities to evaluate other soldiers' integrity and competence may not be available.

Despite the obvious value of having trust in the soldiers in one's own unit, however, it is also important for infantry soldiers to confer trust on a broader level, on both newly arrived team members and on more distant military teams. The next form of trust, category-based trust, addresses these issues.

5.7 Research Implications

Based on the review in this chapter, we expect that the development of person-based trust within infantry teams will be affected by:

- Qualities of the trustor, including one's generalized propensity to trust other people, personal trust histories and ongoing trust experiences
- Qualities of the trustee, including judgements about the competence, benevolence and integrity of the trustee
- Qualities of the interaction, including communication, perceived similarity with another person, shared values and shared goals

Moreover, the research reviewed suggests that in studying trust within infantry teams, it will be important to:

- Establish the dimensions most critical to judgements of trust and trust-related behaviour within infantry teams. As all of the existing research speaks to different contexts from those within which infantry teams function, it is important to consider whether judgements of trust are affected by similar dimensions.
- It will also be important to consider dimensions such as competence, for example, in more detail than is available in the current research. There are, of course, many different ways to be competent. Within military teams, competence may also be reflected by physical strength, certificates, medals, rank, respect of others, operational service etc. It is necessary to understand the many different forms of competence (and their associated impacts on trust) in more detail.
- The trust conferred on other people will often depend on their perceived competence in a specific domain. This suggests that in military teams, trust will vary from mission to mission in accordance with each team member's strengths and weaknesses, and with the requirements of the mission. Different types of missions, of course, will require varying skills. In a humanitarian mission, for example, interpersonal skills may be more important than highly developed technical skills. It is important to vary mission types in a research program and to explore the impacts on judgements of trust.
- It is also important to explore the relationship between predictions that are based on observation (e.g., behaviours, preferences) versus those that arise from attributions of motivation. Which form of prediction is likely to have the most impact on how small team members understand each other, and on how they work together? Is a person who has high trust in another person's competence but lower trust in motivation less likely to actually place trust in this person than a person who has low trust in another's competence but high trust in this person's motivation?

Chapter 6 - Category-Based Trust

Although recognizing that person-based trust is crucial to many social interactions, trust theorists and researchers have become increasingly interested in how trust can exist in situations that do not offer the opportunity for the development of person-based trust. This section explores a less familiar form of trust, called category-based trust. Category-based trust is conferred on an individual or group solely on the basis of their membership in a group or category that is positively linked with trust (Kramer, 1999), and can exist even in situations that preclude the development of person-based trust. This section reviews the factors that contribute to the emergence of category-based trust, and explores the implications of this form of trust within a military context.

6.1 The Need for Category-Based Trust

In everyday life, there are many situations in which trust is critical, but which do not allow the time typically needed for person-based trust to develop. A person going into surgery, for example, does not often have the opportunity to interact with a surgeon before an operation, to see how the surgeon performs in other situations, and to learn that the surgeon is competent and consistent. In the absence of any direct experience, a person about to enter surgery needs to trust that a surgeon has the skills and expertise needed to perform a safe and successful operation. On an even larger scale, people also need to confer trust not just in other people, but in institutions and organizations. A mother, for example, needs to trust consumer protection agencies that the appropriate safety tests have been completed on the toys that she purchases for her children.

Similarly, infantry soldiers need to trust not only people within their own sections, but also the members of their platoons, companies and battalions. They also need to believe in the abilities of support staff and of other combat forces, such as armour, artillery and engineers. In short, in order to manage the risk, vulnerability and uncertainty inherent in military operations, infantry soldiers need to be able to trust in the skills of a large number of people in different specialties at both a personal and impersonal level.

In military contexts, there are many potential challenges to the formation of person-based trust. Within a small infantry team, for example, high rates of turnover combined with a fast pace and need to perform immediately even with newly activated team members sometimes make the progressive, historical development of trust impossible. Suspending an action in order to take time to get to know and trust a new team member is not an option, and there is often neither time nor opportunity to accumulate the information necessary to build trust. Yet, in order to continue to function as a unit, soldiers must assume that other team members are trustworthy. Given an order to advance, for example, a soldier must move ahead and must believe that even an unfamiliar soldier will protect his back.

Outside of one's own section, prolonged and intensive interaction with others may occur, but does not necessary occur on a broad level. Sheer numbers of other people at the company and battalion levels can make it impossible to establish a personal trusting relationship with every person. Opportunities to build trust through shared experiences and shared values may be limited in these contexts.

As trust is also promoted through the sharing of common experiences, diversity between soldiers in their jobs may make the development of trust more problematic. It may be more difficult, for

example, for an infantry soldier to build person-based trust with an artillery soldier, as it is may be difficult to make judgements of competence in an unfamiliar domain, or to establish confident predictions about his behaviour. Infrequent contact may make establishing person-based trust more difficult as well.

Lastly, members of infantry teams need to trust in the entire military system to support their efforts to perform the missions they receive. In putting their lives at risk, soldiers must trust that the military system will provide them with the resources and supports needed to complete their mission. Soldiers must also trust that the military system will look after them as well as their families if some ill befalls them. The reverse is also true – the military as an organization also needs to trust its soldiers, in their abilities and motivation to carry out the orders that they have been given, and that they will perform in a manner in keeping with the military's values and vision.

In all of these contexts, category-based trust is critical. Category-based trust can exist even in the absence of direct and personal contact, and without shared social norms and experiences. As its name suggests, category-based trust is conferred on an individual or group solely on the basis of their membership in a group or category (Kramer, 1999). Category-based trust may be based on different kinds of categories. Social roles, for example, are specific kinds of categories that provide information about the people that occupy the role. Category-based trust may occur because of the training and experience known to be associated with certain roles. A surgeon may promote trust in others, for example, not because of direct evidence of personal competence, but because the role of "surgeons" is typically associated with information about the general competence and effectiveness of surgeons. Similarly, a leader starting command of a new unit can trust his soldiers even without ever having seen them perform in combat if he believes that his soldiers are representatives of a system of military training and expertise that has produced soldiers shown to be worthy of trust for generations The reverse, of course, is also true – soldiers can trust their leaders because of the position of authority granted to these leaders by the military system. In short, category-based trust can emerge even in circumstances that preclude the development of person-based trust.

6.2 Origins of Category-Based Trust

It is important to explore the origins of category-based trust. It should be noted, however, that the research and theory around person-based trust is considerably more developed and established than the literature regarding category-based trust. Although several trust theorists and researchers have noted the existence of this unique form of trust (e.g., Meyerson, Weick, and Kramer, 1996; Jarvenpaa and Leidner, 1999), category-based trust has yet to be placed in the context of a unified model. The most complete account of category-based trust is provided in a theoretical paper by Kramer, Brewer and Hanna (1996). This work focuses on trust in collective settings, and provides an excellent account of the emergence of category-based trust.

As its name suggests, this form of trust is dependent on categorization (Kramer et al., 1996). At its simplest level, categorization involves making distinctions between two or more objects or concepts. Categorization is typically used as a way to simplify the organization of information about objects and concepts. Identifying a table as a piece of furniture, for example, not only distinguishes it from other objects but also provides information about what kind of object it is likely to be. Categorization is both a necessary and pervasive way to organize experience.

Psychologists have long argued that categorization within the social environment is just as common, and that the groups to which people belong are also associated with certain kinds of information. Categorizing one's co-worker as a man or as a Black person, for example, may give rise to beliefs, feelings and expectations about how this person is likely to behave in a variety of situations. It is critical to note that the expectations, beliefs and feelings associated with categories (and the behaviours that they give rise to) are not necessarily known or expressed at a conscious level, and may manifest themselves in either conscious or unconscious ways during interactions with members of a category.

Categories, and the information associated with categories, develop over time. Categories are sometimes the result of direct experience with a member of the category. Many other factors, including socialization and cultural context, also impact on the information that comes to be associated with categories.

Once established, social categories are often used to simplify the interpersonal environment, and to manage the vast amount of information about other people available during interactions. Impression formation theorists have argued that categories are often activated in response to a lack of time, opportunity or motivation to form a personalized view of another person (Brewer, 1988; Fiske and Neuberg, 1990). When confronted with an unfamiliar person, then, it is more efficient to use a category-based representation of this person in order to understand them and to be able to make assumptions about how this person is likely to behave. Taking the time to evaluate each individual piece of information about this person (e.g., appearance, traits, or behaviours) takes much more time and effort (Fiske & Neuberg, 1990).

Some social categories contain information regarding the trustworthiness of members of the category. Many people, for example, believe that politicians and lawyers are generally untrustworthy, but that members of the clergy are generally likely to exhibit trustworthy behaviour. People who are members in the category of "clergy" may elicit the trust of others preemptively as a product of their group membership. No direct contact and no time is needed to confer this category-based trust. As Kramer et al. (1996) argue, the category to which a person belongs can serve as a proxy for personalized knowledge.

In some cases, categorization may also lead to identification. It is possible to not only categorize a person as belonging to a particular group, but also to categorize this person as belonging to one's own group. This process is called identification. Kramer et al. (1996) argue that in organizational settings, "*the willingness of individuals to engage in trust behaviour in situations requiring collective action is tied to the strength and salience of their identification with an organization and its members*". In short, identification is the key to category-based trust.

Kramer et al. (1996) argue that identifying with another person, and categorizing this person as a members of one's own group may influence how much trust is placed in this person. This may occur because identifying with another person changes the way that decisions are made in a choice situation. In normal choice situations involving other people, we typically calculate the benefits the costs and benefits of our actions with reference to our own personal outcomes. When we identity with another person, however, decisions are no longer made on an individual level, but on a collective level, as identification makes the impact of decisions the same for both parties. Trust theorists argue that this shift from a personal identity to a collective or group identity makes people more likely to trust others who share membership in the same group or category. It is important to note, as Kramer et al. (1996) emphasize, that one's willingness to trust a common group member is

predicated on group identity being both strong and salient. As people move through different roles in life, their salient identity (e.g., as a parent, a spouse or a worker) may shift. In order to exert an impact on judgements of trust, identification with other group members must be at the forefront.

Categorization and identification are extremely powerful processes in interpersonal contexts. The mere act of associating another person with a group (either consciously or unconsciously) can influence the degree of trust that is conferred in that person. Moreover, category-based trust is also not limited to an interpersonal domain. Trust is also conferred not just in people, but in systems and organizations. Many businesses, for example, work to establish a trusted public image, and to invite people to see themselves as a member of the organization. Their hope, of course, is to increase trust by promoting people's identification with their organization.

The next section explores in more detail the factors that impact on category-based trust.

6.3 Factors that Affect Category-Based Trust

A number of factors, all related to categorization and identification, influence the emergence of category-based trust. The first part of this section explores several factors that affect the emergence of category-based trust in the context of interpersonal relationships. These include shared membership, in-group bias, stereotypes, attribution processes, and self-categorization. The second part of this section explores factors that influence category-based trust within a broader organizational context, and explores the implications of category-based trust for small military teams.

Shared Membership – Category-based trust may be conferred simply on the basis of shared membership in a category. Brewer (1981; cited in Meyerson, Weick, and Kramer, 1996) argues that belonging in the same category as another person "*bypasses the need for personal knowledge and the costs of negotiating reciprocity with individual others. As a consequence of shifting from the personal level to the social group level of identity, the individual can adopt a sort of 'depersonalized trust' based on category membership alone*". Shared membership in a social group may influence trust indirectly through similarity. Social psychologists have long argued that belonging in a common group enhances the degree to which people see themselves as similar to other members of the group (Tajfel, 1982; Tajfel and Turner, 1986). It may be the case, then, that seeing oneself as similar to other people reduces the risk inherent in trusting them, as the similarity provides some basis for assuming that they will behave in ways similar to oneself.

This analysis suggests that, in a military context, shared group membership may play an important role in establishing trust in other people. As part of the Army as a whole, for example, soldiers may confer category-based trust on new team members or on distant group members in the absence of any direct evidence of their competence and without any history of interacting with them. To the extent that an infantry soldier sees himself as belonging in the same overarching group as an artillery soldier, then, he may trust even an unfamiliar soldier.

Of course, the degree to which trust is conferred on others will depend on the identity that is salient at the moment. As an infantry soldier participates in numerous contexts and situations, it is likely that the identity most salient at any given moment may shift as he moves through different contexts. In the context of his small 8 –10 person team, his identity may be most closely associated with his team and the identity that the team has built for itself. In the context of a larger group, one's salient identity may focus on the experiences and traditions existing within that group, for example, the

tradition of the regimental family. These identities, of course, may have some overlap, but may also have distinct characteristics.

It is clear, however, that basing one's judgments of the trustworthiness of others on a shared identity may be very adaptive, as it frees people from the time, energy and effort to develop person-based trust. On the other hand, particularly in a military context where the stakes are high, it is critical that judgements of trustworthiness are accurate. Believing that another soldier will perform competently without any direct evidence but because of a shared group identity may well be dangerous if the group identity is associated with inaccurate or outdated information.

In-group Bias – An extensive body of social psychological research suggests that people show preferential treatment toward people belonging in their own social groups. People are also more likely to confer trust on people in common groups. Research by Brewer (1981; cited in Brewer, 1995) shows that categorizing people as belonging in one's own group can directly affect judgements about the trustworthiness of others, as in-group members are typically seen as more honest, cooperative, and trustworthy than are out-group members. This, of course, suggests that people are also more likely to engage in trust behaviours with in-group members. There is evidence, then, that in-group bias is a factor in category-based trust.

In a military context, favouring the members of one's own team may promote the development of trust. Potential problems may surface, however, if cultivating a unique in-group identity is also associated with denigrating out-group members. Work by Winslow (1998), for example, argues that strong regimental identity within a military system may promote denigration of others in other regiments or in the larger military system. As soldiers move through many different contexts, they may also come into contact with other soldiers previously seen to be out-group members. This, of course, could impact on the degree to which soldiers are willing or able to trust other groups (e.g., from other nations, or other specialties).

Stereotypes – The concepts of "stereotypes" and "categories" are often used interchangeably in the literature. Early stereotype researchers defined stereotypes as "exaggerated beliefs associated with a category" (Allport, 1955; cited in Kunda, 1999). In the stereotype literature, stereotypes are typically defined as the cognitive structures containing beliefs, feelings and expectations about members of a social group (Kunda, 1999), whereas social categories are viewed solely as discrete labels that distinguish and delimit social groups. In the psychological literature, generally, however, categories are seen as comprised of both a category label, as well as information about the members of the category. Other than minor differences in usage and scope (i.e. stereotypes typically refer only to social categories), at a conceptual level, stereotypes and categories are similar.

There is also evidence that the activation of social stereotypes can impact on judgements of the trustworthiness of other people. Stereotypes that contain information about the trustworthiness of specific group members may impact directly on the emergence of category-based trust. One might expect for a member of the clergy, for example, to be inherently trustworthy, or for a gang member to be an unsuitable person to trust. Judgements about others' trustworthiness as well as the likelihood of engaging in trusting behaviours with them can be determined not only by a history of personal interaction, but by their membership in stereotyped groups. This occurs when a stereotype provides information relevant to trust.

Work by Orbell, Dawes, and Schwartz-Shea (1994) provides empirical evidence that stereotypes can impact directly on the emergence of trust. This work explores whether gender stereotypes affect beliefs that others will engage in trusting behaviour. Gender stereotypes commonly cast women as

more caring and compassionate and men as more aggressive and competitive. Women are implicitly assumed to be inherently more trustworthy than men. Participants were given an opportunity to participate in either a cooperative or competitive game with a man or a woman target. Participants expecting to interact with a woman proved to be more likely to cooperate than did participants expecting to interact with a man. This effect appeared to have been related to gender stereotypes rather than to the prior behaviour of the man and woman partners, as both targets had been shown to cooperate equally with their partners in prior trials. This study provides good evidence that the beliefs associated with stereotyped groups can impact on the trusting behaviour directed toward members of stereotyped groups.

Another finding in this study also has important implications for category-based trust. When study participants were asked to actually engage in trusting behaviour with the actual target person (either a man or a woman), participants directed trust behaviour toward a man and woman equally, despite the gender stereotype. The person and not the category appeared to determine behaviour toward these individuals. This finding suggests that a very important caveat must be made in considering the impact of stereotypes on trust. On one hand, it is clear that stereotypes can impact on judgements of the trustworthiness of others. On the other hand, directly interacting with a member of a stereotyped group may override the impact of social stereotypes, and judgements about their trustworthiness may not always be affected by the stereotyped group to which they belong. This finding is consistent with existing stereotype research that suggests stereotypes will not always impact on impressions of others in the presence of individuating or personal information about them (Locksley, Borgida, Brekke, and Hepburn, 1980).

In infantry teams, stereotypes about socioeconomic status, gender, education level, for example, could play a role in how soldiers view each other and interpret each other's behaviour. As such, stereotypes represent a challenge for any interpersonal situation. The fact that stereotypes can impact on the emergence of category-based trust has important implications in the context of military teams. In operations requiring multi-national forces, for example, racial and cultural stereotypes are likely to influence levels of trust between soldiers. As many common cultural stereotypes have extremely negative associations, the activation of these stereotypes could seriously hinder trust.

On the other hand, not all stereotypes are negative. Expectations and beliefs about groups can also carry positive information about the likelihood of them behaving in a trustworthy manner. Seeing a person as belonging to a highly regarded combat team with a distinguished combat record may positively influence the emergence of category-based trust.

Moreover, there is also considerable evidence that stereotypes can also be self-perpetuating and may lead to category-based processing of information as a whole. Once someone has identified another person as a member of a stereotyped group, even behaviours of this person that are inconsistent with the stereotype are often reinterpreted as evidence in support of the stereotype. As the stereotype associated with Black people is commonly a negative one, for example, studies have shown that the act of pushing another person may be seen as a playful act when done by a white person, but as a violent shove when exhibited by a black person (Duncan, 1976).

In light of increasing racial and cultural diversity in military personnel, as well as increasing involvement with other cultures (e.g., in OOTW), it seems critical to further explore the relationship between trust and stereotypes. As stereotypes affect not only trust, but also decision making and information processing, it is also important to understand the role of stereotypes generally.

Attribution Processes - Social categorization has been shown to affect attribution processes, and, more specifically, the causal inferences that we make about other people. Research clearly shows that categorizing others in the same group as oneself can impact on the attributions made about others' behaviour. Work by Pettigrew (1979; cited in Kramer, Brewer and Hanna, 1996), for example, shows that people are more likely to attribute the negative behaviour of an in-group member to situational factors, but to interpret the same negative behaviour by an out-group member as a stable and consistent personality trait.

This finding has potentially serious implications for trust in infantry teams. On one hand, the preferential attributions given to in-group members may promote trust and lead to more trusting behaviour because even actions that represent potential violations of trust may be discounted as being a product of the situation rather than a product of the person's true motives. Giving the benefit of the doubt to a fellow soldier may sometimes be the best way to preserve a positive relationship and to promote a positive team environment. On the other hand, making the wrong causal inference about a person's behaviour could also have serious consequences if this person's motives really are less than honourable. Although it seems critical to promote group identification, it is also important to ensure that attributions about others are not based wholly on identification.

To this point, we have explored the factors that impact on the emergence of category-based trust within an interpersonal context. Although there is clearly a great deal of overlap between trust in an interpersonal context and an organizational context, the following section reviews 3 factors that have typically been cast in an organizational context.

Rules - Rules are also an important factor in the establishment of category-based trust. Kramer (1999) defines rules as "*explicit and tacit understandings regarding transaction norms, interactional routines, and exchange practices*". Trust theorists have argued that rules allow people to infer that others are likely to behave in a trustworthy manner, even without direct knowledge and contact, because one's membership in a group implies an acceptance of the explicit and implicit rules of the group (Kramer, 1999). Rules may also enforce ethical standards within groups, and allow people to function in a group-oriented context (Jones and George, 1998). People are more likely to be trusted when their behaviour is seen as governed by rules, because rules make one's behaviour more predictable. As in the case of person-based trust, then, predictability also plays a role in promoting category-based trust.

Rules can also foster trust through their impact on the self-perceptions of individuals. This may occur when an organization sets rules that promote trust at a collective level. At Hewlett-Packard, for example, employees are free to use any laboratory equipment that they need within the company without an internal monitoring system (Kramer, 1999). Even more importantly, employees are also encouraged to borrow any equipment that they need, and take it home. Kramer argues that because Hewlett-Packard "institutionalizes trust through practices at the macro-organizational (collective) level, trust becomes internalized at the micro-organizational (individual) level" (Kramer, 1999). Rules impact not only on trust in others, but may also affect individuals' beliefs about their own trustworthiness.

Rules are also likely to play an important role in promoting trust in a military context. Implicit rules within infantry teams, for example, may dictate how team members should interact with each other in given situations and may increase trust by promoting predictable behaviour. Rules would also help in interacting with larger teams, as they provide a basis for inferring that the artillery team, for example, is likely to be governed by similar rules of both interpersonal conduct and military

procedure. In a military context, both explicit and implicit understanding of rules may help to promote category-based trust.

Roles - The knowledge that a person occupies a particular role can also influence the degree to which others trust them (Meyerson et al., 1996). Roles, too, are categories that provide information about category members. Trust can be conferred solely on the basis on one's role rather than on the basis of personalized knowledge.

Roles may influence the development of trust in several ways (Kramer, 1999; Meyerson et al., 1996). First, roles are usually both granted and accepted. Knowing that a person was deemed appropriate to occupy a particular role, for example, may allow the assumption that this person is competent. Moreover, the fact that an individual occupies a role implies an intention on the part of the individual to fulfill the demands of the role. These assumptions facilitate judgements of trustworthiness. Similarly, many roles (particularly in the work domain) have significant barriers to entry. Occupying a role gives indirect information about a person's competence and expertise at having overcome these barriers. Roles also involve training procedures and socialization processes that allow the assumption of common role-related abilities and skills. Trust is facilitated by knowing that a member of a group has received the same training and experience, as this may signal a higher level of competence in meeting the demands of the role.

Lastly, roles are often performed within environments with numerous accountability mechanisms and controls. The mechanisms of training and expertise that produce role-related behaviours are trusted, not the person. The impact of roles on trust is best summarized by Dawes (1994: cited in Kramer, 1999)

> *"We trust engineers because we trust engineering and believe that engineers are trained to apply valid principles of engineering, moreover, we have evidence every day that these principles are valid when we observe airplanes flying."*

Roles facilitate trust directly, then, by reducing the uncertainty (and associated risk and vulnerability) about a person's trust-related intentions and capabilities. They also promote trust more indirectly by reducing the need for monitoring (Meyerson et al., 1996).

The fact that roles affect category-based trust has important implications within a military context. In a military context, roles can provide a strong basis for presuming that a soldier new to the team is trustworthy, as he is a product of a system that defined his role, and which chose them to be in the role. Moreover, his role has also been defined and established by training. Similarly, because of the diverse functions needed in military operations, knowledge about the training and experience needed for soldiers to enter particular roles may also help to improve trust when team members representing different specialties need to work together. Knowing the diverse combat skills that infantry soldiers must master, for example, may increase the trust conferred by artillery soldiers. In military situations, the issue of rank is also extremely important, and is likely to play an important role in how people judge the trustworthiness of others. Ranks, of course, are typically associated with trust-relevant information.

6.4 Category-Based Trust in Small Teams

The preceding analysis suggests that it is possible for trust to exist even in situations that preclude the development of the more common person-based trust. Direct and extended interaction with

other people, and exploring shared values and experience, are not the only ways to come to trust others. Category-based trust allows people to confer trust on others as a sole product of the categories and groups to which they belong.

This form of trust is profoundly important in military environments. Category-based trust provides an alternative to many of the challenges inherent in developing trust in military situations. High rates of turnover, for example, may limit a soldier's ability to cultivate person-based trust. Category-based trust, however, may enable a soldier to confidently place trust in a new infantry team member. To the extent that this new soldier is viewed as the product of a system of training and expertise, for example, trust can be conferred even in the absence of direct evidence of his competence or perceived similarity. The emergence of category-based trust can enable people to trust each other implicitly and immediately. At the unit level, then, category-based trust can play a key role in facilitating the ability of team members to manage risk and uncertainty.

Category-based trust is also likely to play a role in other contexts. At the battalion and brigade levels, for example, where the sheer number of people precludes the direct and prolonged interaction needed to establish personal trust in others, category-based trust can be conferred preemptively and without prior experience and contact. Even team members who have never met can assume that members of the military establishment generally are worthy of trust and likely to engage in trustworthy behaviour. This can occur when team members see themselves as belonging in the same group as others, as soldiers representing a common military system. Depersonalized or category-based trust can be a most valuable asset in military environments.

Promoting the emergence of category-based trust, of course, is dependent on having a strong and salient identity to which members of small teams are motivated to link their own identities. As Brewer (1995) argues, identification with a group requires that membership in the group is seen as a significant aspect of a person's self-concept, and that the individual is more concerned with collective interests than self-interest. In order for category-based trust to emerge within a small team, then, a common group identity must be strong, salient and personally meaningful to team members.

Within the military domain, identification is promoted through a variety of mechanisms. As work by Winslow (1998) suggests, the cultivation of a common group identity underlies many military traditions and practices. Common identity is cultivated through regimental traditions, for example, and through physical artifacts, as well as legends and rituals that are passed down from generation to generation. In military training as well, the focus is on promoting a "we" identity rather than an "I" identity. Hoffman (1998), for example, talks about indoctrinating a new group of recruits into military life. He argues that the early stage of training "*seeks to break down recruits and subdue their egos and individuality. With identical shaved heads, new uniforms and rigid schedules, new recruits quickly develop group identity and norms.*" Extensive work by Pigeau and McCann to develop a framework for Command and Control and the associated theory of Common Intent also posit that identification within the military establishment plays an important role in the creation of a common vision and purpose (e.g., Pigeau and McCann, 1995). These military practices and traditions work to promote a strong and salient military identity. The practices and traditions that promote identification are also likely to promote category-based trust.

As important as category-based trust is, however, it is also critical to note that research has not yet directly compared the robustness of person-based trust vs. category-based trust. Meyerson, Weick and Kramer (1996), however, have argued that category-based trust is a less robust form of trust

than person-based trust. The important question for understanding trust in small teams, however, is whether category-based trust allows the same kind of confident predictions about other people that are enabled by the development of person-based trust. This is an empirical question that has yet to be explored. In general, however, it seems likely that category-based trust on its own will not (and perhaps should not) be seen as an adequate basis on which to make judgements about the trustworthiness of others over extended interactions. Certainly, if there is a strong foundation of category-based trust within a small team, for example, this may enable team members to confer trust on a newly arrived team member. If the team member's performance in team tasks is inadequate, however, this trust will quickly deteriorate, as common group membership alone will not be an adequate basis for conferring trust. At the early stages of interactions with unfamiliar others, however, or in situations where time and energy are not available to process more personalized information relevant to trust, category-based trust may well be an important means by which to presume that others are trustworthy.

It is also important to note that, by its very nature, category-based trust may also pose some potential problems. People engaging in categorical processing of any form tend to use biased information processes (for a review, see Kunda, 1999). There is considerable empirical evidence suggesting that when categories are activated, category-consistent information is attended to more closely than is category-inconsistent information. If a category is active in understanding another person, behaviour or information which is not consistent with the active category (which shows this person to actually be untrustworthy, for example) may be given less weight, or may be dismissed. If breeches of trust are not quickly recognized as such, this could pose a danger to the person whose trust has been violated (Kramer, Brewer and Hanna, 1996). Similarly, when people identify with other people, there is also a tendency for them to overestimate reciprocity (Kramer, Brewer, and Hanna, 1996). This assumption, too, could pose problems if another party is not actually motivated to reciprocate in kind. Category-based trust, then, is an important form of trust, but a potential hazard if group categorization and group identification wholly preclude the critical evaluation of others' ongoing behaviour.

From a different perspective, attempting to build trust through promoting identification is potentially dangerous. Winslow (1998) notes that group identification has been at the root of several breakdowns in discipline in the Canadian military. When members of military units developed their own smaller subcultures and developed a "we-they" attitude, this not only hampered teamwork, but also led to stonewalling and failure to report inappropriate behaviour. Winslow blames a lack of proper military authority and strong values in the deviant behaviour of the breakaway teams. This would certainly seem to be true.

From a social psychological perspective, however, the emergence of a smaller subculture is dangerous because members of the subculture create a new identity, a "team" identity that may usurp the superordinate or overarching identity that organizations try to cultivate (Brewer, 1995). This may occur, for example, when the members of specific departments within an organization (e.g., marketing) form a common identity that is distinct from the global organizational identity (of which marketing is only one part). Brewer argues that this occurs because even though the members of the subgroups are interdependent and see themselves as members of the superordinate category, the subordinate category is more immediate and may be more psychologically salient than the superordinate category. These factors make the creation of a potentially hazardous "team" identity more likely. This differentiation, creates ingroups (e.g., the team) and outgroups (e.g. the organization) within what should be a united structure. Within the military system, then, although

team identification may build trust within teams, it may damage trust at a broader level. Moreover, there is also substantial evidence that subgroup differentiation can interfere with a team's ability to cooperate with other teams, even teams from the same organization (Kramer and Brewer, 1984)

As Winslow's (1998) review attests, problems created by subgroup differentiation can be potentially serious. A review paper by Brewer (1995) notes a line of research that is particularly relevant to this issue, wherein researchers have attempted to understand how to promote superordinate identity rather than subordinate identity. Research on a "common ingroup identity model" (Gaertner, Dovidio, Anastasio, Backmand and Rust, 1993; cited in Brewer, 1995), attempts to heighten the salience of the superordinate identity and reduce the salience of the subgroup identity by varying symbolic features, such as group names or group colours. This work has shown promise in reducing ingroup bias within smaller teams. Research has also shown that promoting interdependence at a global level (e.g., reminding group members of common interests, and enhancing awareness of interdependence) reversed the effects of subgroup differentiation. Some research has also been directed at "crosscutting" categories or roles. Much of what makes small teams distinct is the role that they perform. This role, however, can serve as the basis for subgroup identity. Within organizations, introducing tasks that require equal participation of members from diverse teams with several different roles reduced subgroup differentiation. We note, then, that although it is one way to develop trust, identification can also be extremely hazardous to trust, and we advocate a more specific review of the literature relating to subgroup differentiation. It is clear that building trust within small teams through identification will require serious consideration of the negative impacts of subgroup differentiation, and deliberate attempts to keep the superordinate military identity at the forefront. We also argue that strong and salient values that promote tolerance and inclusiveness are also likely to aid in reducing the negative effects of ingroup bias.

More globally, this analysis speaks to the importance of using both person-based and category-based processes interchangeably to build trust in small teams. Clearly, there are benefits to person-based trust, but it is difficult to establish in many of the settings that infantry teams function. Similarly, category-based trust is important, but it needs to be integrated with personalized information that speaks to people's actual trustworthiness. The next section develops these ideas in more detail.

6.5 Integrating Person-Based Trust and Category-Based Trust

The existing trust literature has only addressed person-based and category-based trust in isolation. This section aims to promote a more integrated view of trust, by exploring how person-based and category-based trust are related.

Explorations of person-based and category-based trust provide compelling, and in many ways, similar accounts of how we come to trust other people. Person-based trust and category-based trust develop through many of the same underlying processes. Person-based trust evolves through the gradual accumulation of information about others which, when gathered together, allows for judgements of predictability and dependability. The process of forming categories about others serves a similar function in many ways, as categories also typically contain expectations and beliefs about how others are likely to behave. These expectations may arise in the course of prior interactions with other members of the category, but may also derive from the attitudes, values and experiences of other people, either directly (e.g., socialization by parents) or indirectly (e.g., through depictions in the media of particular groups). However a category is derived, categorizing a person as a member of a given category associates this person with prior predictions about how

members of the category are likely to behave. Prediction is an important part of both person-based and category-based trust.

Identification also plays a key role in both forms of trust, as seeing oneself within the same group as another person or group of people often leads to seeing these people or groups as inherently more trustworthy. Although there are differences in how category-based trust theorists and person-based theorists such as Lewicki and Bunker (1996) have viewed the development of identification, both sides agree on the importance of identification for fully developed trust.

Both person-based and category-based perspectives, however, are also limited in the portrayal of trust that they provide. Viewing trust that is conferred in another person as being impacted only by shared experience, values and similarity, for example, does not consider many other category-based issues that may simultaneously affect judgements of trustworthiness. Even though a politician, for example, may share values and experiences in interactions with others, she may not be seen as particularly trustworthy despite her sincere efforts. If the commonly negative stereotype of politicians as being inherently untrustworthy exerts influence over the attributions that others make about her behaviour, efforts that would typically promote person-based trust may fail.

Similarly, existing accounts of category-based trust do not adequately address how category-based judgements of the trustworthiness of others can be altered by direct and personal contact. Conferring trust on a fellow infantry soldier because of a common group identity and shared socialization and training processes is clearly possible. In combat situations with high levels of risk and uncertainty, however, group identity alone will likely not sustain trust if the person does not quickly display unambiguous evidence of trustworthiness. If he runs when the first shots are fired, for example, category-based trust will quickly be revised in favour of a more person-based approach.

As a whole, this analysis suggests that conceptualizing trust as either person-based or category-based may oversimplify the complex nature of trust in situations such as those encountered by small military teams. It may be reasonable to suggest (as some impression formation theorists have) that our impressions of others are simultaneously influenced by the categories to which they belong and by the personal qualities and behaviour evident during interactions with them (Kunda and Thagard, 1996). From this perspective, then, trust can be conceptualized as a product of both category-based and person-based processes working together to jointly establish judgements about the trustworthiness of others. During combat being able to devote all of one's energy to the task at hand rather than to whether one's fellow soldier is doing his part to ensure the safety of the unit is a critical benefit. On the other hand, however, trusting whole-heartedly in the competence and benevolent motives of another person is only adaptive if the person is actually reliably trustworthy. Military situations offer a particular challenge in that the stress and anxiety inherent in combat situations, for example, may precipitate a person behaving out of character, or even "cracking" under the pressure. It seems critical for members of infantry teams to constantly update their judgements of the trustworthiness of other team members, by shifting between using person-based processing and category-based processing.

This integration seems critical for military environments, as these environments require people to establish trust at both a personal and depersonalized level. As military operations often function in extremely diverse interpersonal environments, it is important to understand that trust in others can be influenced by the stereotyped groups to which they belong. At the same time, however, it is also urgent to understand how predictions about people's motives, traits and behaviour can impact on

judgements of trust. Viewing person-based trust and category-based trust as impacting simultaneously is the best way to capture the complexity of trust in the situations commonly faced by small military teams.

Moreover, this integration is critical because although person-based processing and category-based processing have their merits, they also have disadvantages (Brewer, 1988; Fiske and Neuberg, 1990). Forming an impression of an unfamiliar person using personal or individuated processing takes a considerable amount of time and energy. In this sense, information about this person must be processed individually and an impression created from the bottom up. The main advantage of forming an impression with bottom-up processing is that the impression is likely to be more accurate due to the time and effort taken to create it. On the other hand, taking the time to deal with each individual piece of information (e.g., appearance, behaviour, disposition) before forming an impression of another person takes a great deal of time. Person-based trust takes more time and energy to develop (Meyerson, Weick and Kramer, 1996), but is also likely to result in more accurate judgements of trustworthiness.

Category-based processing, on the other hand, is less effortful and energy-consuming, as each piece of information does not need to be scrutinized (Brewer, 1988; Fiske and Neuberg, 1990). When we use category-based processes to understand another person, we fit individuating information about them into a preexisting category, and one's impression of this person is built in a top-down manner. Forming an impression in this way is much faster and requires less effort. On the other hand, this form of processing also tends to be less accurate due to biased processing. Information that does not fit correctly into the category may be distorted in order to fit better, or inconsistent information may be discarded altogether (Brewer, 1988; Fiske and Neuberg, 1990). Category-based trust can emerge very quickly, but may result in less accurate judgements of trustworthiness, and may be more subject to disconfirmation (Meyerson, Weick and Kramer, 1996).

As military situations require both high accuracy in judgements of others' trustworthiness, as well as a rapid judgements of trustworthiness, perhaps the best to attempt to cultivate trust within small teams is to promote the simultaneous use of both person-based and category-based processes in developing trust in others. This, of course, will require active cultivation of the factors that promote person-based trust (e.g., competence, predictability, shared values) in the training and support given to small teams, as well as the perpetuation of a common military identity that provides soldiers with a meaningful basis for identifying with others.

6.6 Trust and Distrust in Military Teams

As noted in the introductory chapter, the issue of whether trust is best represented as a single bipolar construct representing trust and distrust or whether trust and distrust are separate constructs (Lewicki et al., 1998) is an issue that requires further empirical exploration. The outcome of this research, however, is critically important for the military domain. Lewicki et al. (1998) make the persuasive argument that both trust and distrust are critical in interdependent situations and that the real problems in relationships occur when only trust or distrust exists to the exclusion of the other.

A recent military incident appears to provide support for the purported dangers of trust without distrust. In a recent well publicized event, a Navy submarine, the USS Greeneville, conducting an emergency surfacing procedure for the purpose of training, collided with a Japanese fishing boat, sinking the boat and killing 16 civilians. In a still ongoing military inquiry, a U.S. Navy admiral, Rear Adm. Charles Griffiths, has testified that trust may have played a role in causing the incident.

Specifically, Griffiths presented evidence that the senior officer on board the Greeneville believed that the Commander was rushing preparations for the drill, but did not express his misgivings. Even the Greeneville's second-ranking officer did not voice his concerns about the quick pace with which preparations to surface were undertaken, including the time spent rising to periscope depth and the height of the periscope itself. Griffiths argued that misgivings were not expressed, in part, because of

"A command climate in which crew members were unaccustomed to questioning the commanding officer because they trusted his skills." (New York Times, Mar. 8, 2001).

Although the second and third officers in command questioned the care taken during preparations to surface, they did not question this because of their trust for the commander. This analysis lends credence to the Lewicki et al. (1998) argument that although trust is important, the ideal situation in relationships is to have a "healthy dose of both trust and distrust". We argue that this is particularly likely to be true in small military teams, where the need to be constantly vigilant is critical.

As noted earlier, however, the trust literature generally suggests that trust researchers and theorists generally have yet to embrace this view. As the issue of the dimensionality of trust is not specified in much of the existing research, it is unclear whether trust theorists disagree that trust and distrust are distinct constructs or whether the implications of this contrasting view have yet to be fully examined. It is clear, however, that exploring whether trust and distrust do have unique antecedents and consequences is critical for understanding trust in small teams.

6.7 Research Implications

Category-based trust, although less established in the current trust literature, is an important form of trust that should be considered in the context of small infantry team research. Based on the review in this chapter, we expect that the emergence of category-based trust within infantry teams is dependent on identification and categorization processes. More specifically, we expect that category-based trust within infantry teams will be affected by:

- Shared group membership
- Ingroup bias
- Stereotypes
- Attribution Processes
- Rules
- Roles

Moreover, we argue that category-based trust within small teams may be facilitated by the cultivation and promotion of a common military identity. The literature reviewed in this section also has several research implications:

- It will be important to understand the relationship between person-based trust and category-based trust, and to understand how they interact in determining judgements of the trustworthiness of others or trust-relevant behaviours. Are judgements determined by the singular prevalent mode of processing at the time, by an algebraic combination of factors (e.g., competency and identification etc), or by a constantly shifting combination

of both processes? Knowing how judgements of trust are derived is an important step toward predicting how best to support this process within small teams.

- With an understanding of the differences between person-based and category-based behaviour, it is important to ask whether these two forms of trust are equally robust. One way to examine this is by exploring whether the two forms of trust provide the same basis for trust-relevant behaviour. It is one thing to judge a person to be trustworthy, despite any direct evidence that this is the case. It is quite another, however, to be willing to actually put that judgement into action, and to be willing to accept the risk of harm if one's judgement is not accurate. Will person-based and category-based judgements have the same power in predicting trust-related behaviours? Further, will soldiers use the same standards for judging the trustworthiness of other soldiers on whom they know they will need to depend as they do for others?
- Category-based trust leads to assumptions about how other people are likely to behave. In the context of small military teams, it is important to understand which assumptions are relevant to a global military identity. In short, what kinds of predictions (e.g., about competence, shared values, etc.) does this common military identity allow? It is also critical to examine the impact on judgements of trust of other specific factors within military teams (e.g., rank).
- Within a military context, the issue of roles in judgements of trust is extremely important. It is important to examine the impact of the many roles and identities that soldiers adopt as they move through different contexts. Do people have the same standards for trustworthiness as they move through different contexts? If not, how do these standards impact on performance with others within these contexts? Moreover, it is also important to consider the impact of simultaneous membership in several different groups. Even at the platoon and section level one may be a member of a section, as well as being a member of the group "corporal". If these two groups are both important categories that have different implications for trust, how are decisions about trustworthiness made? How do people resolve these possible discrepancies?
- One important implication of identification promoting category-based trust is that some military situations would seem to provide a less clear basis for identification. On some missions, for example, it is not always clear who the enemy is (Dallaire, 2000), and there may be both moral and operational ambiguity. This would suggest that the distinction between "them" and "us" may also be less distinct than in missions where the enemy is obvious and there is little ambiguity about what the mission should accomplish. This analysis suggests that, in these situations, category-based trust may be more difficult to promote, as the category is perhaps less salient and/or less meaningful. In the current research, then, it will be important to vary mission types to explore these issues.
- It is critical that this research also tests the proposed advantages and disadvantages of person-based and category-based trust directly. As noted earlier, research in impression formation generally has suggested that person-based processing is slower but more accurate, whereas category-based processing is faster but more subject to disconfirmation. Moreover, category-based processing may also promote biased information processing. These issues are of critical importance in the military domain.

It is important to explore the differences in trust development via each process and related impacts on performance. Forming person-based trust, for example, is likely to require more resources. Can performance still be sustained if trust development processes are ongoing? Similarly, although having category-based trust in another person may be better than having no trust at all (e.g., if there is no time to develop person-based trust), what are the performance benefits and dangers of inaccurate assumptions about trustworthiness? Just as importantly, can more accurate impressions of others be facilitated by the promotion of more accurate categories?

- The existing trust literature raises the issue of the dimensionality of trust. This issue needs to be resolved at a conceptual level, and the implications of this also need to be explored within the context of small teams. It is critical to understand whether trust and distrust are predicated on the same factors or on different factors. Moreover, it is also critical to identify the performance implications of distrust as well. The USS Greeneville incident suggests that freedom to express distrust may also be an important issue for small teams.

Chapter 7 – Environmental and Team Factors Affecting Trust

There are several characteristics of small military teams, and of the contexts in which they function, that are likely to impact on the development of both person-based and category-based trust. This section addresses how physical and psychological stressors, as well as various team factors, are likely to impact on trust.

A definitive account of how psychological and physical factors are likely to impact on the development of trust is not offered in the available trust research. It should be noted that these ideas are speculative, and based mainly on extrapolation from research in existing areas. A clearer understanding of how psychological and physical stressors are likely to impact on trust in small teams will require considerable future research.

7.1 Physical and Psychological Stress Factors

Military teams face many potential physical and psychological stressors. High levels of noise and confusion, hunger, physical isolation and exposure to extreme environmental conditions (e.g., heat and cold) are just a few of the physical challenges that may be faced in military operations. Infantry teams also contend with a wide range of psychological stressors. As the diary of an infantry soldier serving in Somalia shows, many military situations involve extremely routine and repetitive tasks (Prouse, 2000). Recent Canadian peacekeeping operations in Rwanda also placed soldiers in extremely high pressure environments with significant levels of both operational ambiguity and moral ambiguity, as there were not always clear ethical guidelines about how to protect people with critical but opposing needs (Dallaire, 2000). At any given time, then, members of small military teams may be required to manage hunger and discomfort, time pressure, and high levels of incoming information and ambiguity, while shouldering an enormous level of responsibility and accountability. In short, both the physical and psychological stressors in military situations can often be enormous.

In general, it could be argued that any level of stress in an environment could decrease the likelihood of trust even becoming an issue, as the focus is likely to be more on the task at hand than on processing information about, and attending to others. On the other hand, even in high pressure situations with risk, vulnerability, and uncertainty, issues of trust are likely to emerge.

The issue of how time pressure is likely to impact on judgements of trust within teams has received some attention. Work by Meyerson, Weick, and Kramer (1996) addresses how trust develops in a specific form of work team that functions under intense time pressure. "Temporary teams" are rapidly formed ad-hoc teams, typically comprised of experts from several different areas, who form to address a specific problem or goal. Such teams require a high level of coordinated activity to reach their goals, but have no past and no future, as temporary teams typically disband immediately after project completion. Examples of temporary teams include firefighting teams, airline pilots, and film crews.

Meyerson et al. (1996) argue that the lack of any prior history between team members, as well as the time pressures to perform immediately as a team, preclude the development of conventional person-based trust. Such trust takes considerable time and effort to develop. Due to rigid time

constraints and the need to focus immediately on the task at hand, temporary team members do not have the time needed to establish personalized trust in other team members. This does not mean, however, that trust does not emerge in temporary teams. Rather, Meyerson et al. (1996) argue that people in temporary teams immediately establish trust in other team members by enacting a specific form of category-based trust that is defined by the speed with which it develops. Trust that forms within temporary teams is called *swift trust*. This form of trust is conferred preemptively and replaces conventional forms of trust that develop historically. Swift trust is a specific form of category-based trust, which is defined by the unique speed and the temporary setting within which it develops. As with all forms of trust, swift trust develops in response to risk, vulnerability, and uncertainty. It is important to note that Meyerson et al. (1996) argue that swift trust is more likely at moderate levels of interdependence. When the need for interdependence is low within temporary teams, there is less need for swift trust. When the need is high, however, this also presents more risk and more vulnerability, and trust within the team may take longer to emerge, as people are more afraid of making a wrong judgement about trust.

The two primary factors that contribute to the emergence of category-based trust, categorization and identification, also contribute to swift trust in temporary teams. Meyerson et al. (1996) argue that temporary team members immediately assume a common group identity, and this shift away from a personal identity to a group identity allows them to use substitutes and proxies for more conventional forms of trust. Temporary group members, for example, confer trust preemptively, as other group members are assumed to have been specially chosen by a trusted leader or system to be a member of the team. Seeing other team members as having been chosen by a trusted leader is an important proxy for direct knowledge about a person's trustworthiness, and this allows trust to be conferred quickly. Moreover, temporary team members also share a common identity that is related to their clearly defined and consistent roles. These roles enable immediate role-related expectations of other team members and allow trust within teams to develop rapidly.

Further, Meyerson et al. (1996) argue that because of the time-limited nature of their tasks, members of temporary teams are more likely to use categorization in forming judgements about the trustworthiness of others than are conventional work teams. This assertion is based on a wide range of social psychological research showing that when under time pressure, people are more likely to use categorical processing rather than person-based processing (e.g., Kruglanski and Freund, 1983). Theorists have argued that this occurs because category-based processing is less effortful and quicker to use than taking the time to individually process each piece of information about another person (Fiske and Neuberg, 1990; Brewer, 1988). Under time pressure, people are likely to use category-driven information processing, which emphasizes speed and confirmation. When more time is available, however, people are likely to adapt a personalized approach, and to more carefully consider each piece of evidence that might impact on their judgements of others. Dealing with each piece of evidence independently takes increased time, but also creates more accurate judgements about others. Under conditions of extreme time pressure, research and theory suggest that soldiers are more likely to use category-based processes than person-based processes to develop trust. Given a time critical mission, team members are more likely to rely on knowledge of roles, training and common military identity when making judgements about the trustworthiness of others.

In the case of high information load, research in other areas of social judgement also suggests that trust is more likely to be established using category-based processes rather than person-based processes. Stereotype activation research has shown that people who are exposed to a member of a stereotyped group while busy performing another memory task are more likely to use category-based

processing to understand this person. People who are not under such pressure are less likely to use categorical processing (Gilbert and Hixon, 1991). In situations with high cognitive load and changing information elements, then, working to establish trust may be much more difficult. In highly chaotic environments, people may look for ways to simplify incoming information, and may be unable to perform many of the person-based functions seen critical for the development of trust (e.g., communication and sharing of values and experiences). If trust develops at all, it is more likely to be based on quick and easy category-based judgements of others.

Similarly, when people are under high physical stress such as fatigue, social-psychological literature also suggests that category-based processes are likely to dominate impressions of others. Work by Bodenhausen (1990), for example, suggests that people are more likely to use categorical processing to understand others when at personally sub-optimal times of the day. It is likely that high fatigue would lessen the ability and/or motivation to engage in detailed and personalized processing about other people and increase the probability of categorical processing being used to understand others globally, and in making judgements about their trustworthiness.

Both of these modes of establishing trust have disadvantages. The danger of category-based processing is that resulting judgements are generally less accurate, as this form of processing typically works to fit people into preexisting categories. This may result in important individuating information (that may, in fact, violate placement in the category) being overlooked or misinterpreted. Moreover, being less accurate, category-based judgements are also more subject to disconfirmation. The disadvantage of person-based information processing is that it takes more effort and more time, and takes attention away from other tasks for longer periods.

It is important to point out, however, that existing research in related domains also suggests that current processing goals may completely override the impacts of these stressors, and may affect both the extent to which trust develops, and the processes used to establish trust. Work by Neuberg and Fiske (1987), for example, suggests that when people are dependent in some way on others, they may be more motivated to form an accurate impression of them. When we encounter an unfamiliar person on whom we have some need to depend, we are more likely to take the time to attend to personalized rather than categorical information about them. This research suggests that when motivated to ensure accuracy, people may be more likely to process information about others more carefully despite existing pressures. In military situations, this is a particularly important issue. Given that the cost of trusting another soldier who is not actually trustworthy could be fatal, team members may continue to strive for accuracy even in high pressure situations, as they are highly dependent on even unfamiliar soldiers to fulfill their roles and to behave competently. Because of this dependence, soldiers may continue to use more personal evidence-based processing rather than category-based processing in forming trust-related judgements even when encountering extreme external pressures. As noted earlier, this accuracy is likely to come at the cost of diminished speed.

To this point, empirical trust researchers have yet to address how these specific physical and psychological stressors are likely to affect the development of trust. This area of study remains an important one for future trust research.

7.2 Instability in Team Composition

As noted earlier, high levels of turnover within infantry teams are likely to negatively impact on the ability of teams to build person-based trust. Person-based trust requires time, effort and direct

contact in order to develop. This suggests that one way to promote trust within small teams might be to minimize turnover whenever possible.

On the other hand, merely ensuring stability with military teams may not be an adequate solution for the challenges of developing trust within high turnover teams. A paper by Lieutenant Colonel Kenneth Scull (1990), for example, describes the implementation of an Army program during the 1980's designed to improve the quality of combat forces by promoting stability within units. The logic behind the COHORT program (Cohesion, Operational Readiness, Training), was that policies which promoted bonding and cohesion, competence, self-confidence and trust would ensure more effective combat performance and lessen incidents of psychological breakdown. Rather than having constantly fluid units, with soldiers replacing others within their units as necessary, COHORT units were created and trained as a whole, and their 3 year tour of duty occurred as a stable group. Although this work did not measure trust directly, observational techniques were used to explore trust in the units, as well as formal measures of cohesion.

Despite its promise, however, the COHORT program did not result in higher levels of cohesion among the stable troops. In fact, empirical measures taken in the early stages of team formation, and after teams had been together for three years, showed that both measures of vertical and horizontal cohesion declined over time. However, Scull argues that the measures of cohesion were inadequate and that more informal indicators of trust and cohesion within teams (e.g., team interactions, ability to work together as a cohesive unit) did show an improvement throughout the course of the study. Moreover, Scull also argues that the entire project may well have been undermined by the failure of leadership to embrace the project. Nonetheless, as it is, this work suggests that stability within military teams alone may not be enough to create a trusting and cohesive environment.

7.3 Geographic Dispersion

Although many of the tasks of military personnel are performed in direct contact with other team members, some missions also involve working with team members who are geographically distributed across a wide area. Manning road checkpoints, for example, may involve infantry team members being spread throughout a wide area with little opportunity for direct communication and contact for extended periods. On an even larger scale, military personnel are also asked to work together even while in different countries. Situations where team members lack a shared social context for extended periods of time pose unique challenges for trust. Geographical distribution (and an ongoing need for communication) are likely to impact greatly on how trust develops within such teams. There is some empirical evidence that suggests category-based trust is likely to play a larger role in these situations.

Work by Jarvenpaa and Leidner (1999), for example, suggests that teams who are not only geographically distributed, but which also function exclusively in a shared "virtual" context can form category-based trust. Global virtual teams, as defined by Jarvenpa and Leidner, are separated by space (often working in different locations and/or even countries), time (as all communication is computer mediated and is both asynchronous and synchronous), and often by culture. Such teams typically have a short life span, no common past or future, and communicate only electronically. Virtual teams lack a shared social context that many trust theorists have considered vital to the existence of trust. This study was conducted to explore whether trust can exist in global virtual teams.

This study involved teams of 4 to 5 business students, each from a different country, who worked collaboratively using only email communication on 6-week assignment. Teams worked on two predefined project tasks involving the development of Internet web sites, and worked together to create one paper addressing the project tasks. Participants completed a survey assessing early trust in the team, at the end of the project. Data was collected from the messages that team members sent by email during the course of the project.

Results showed that some teams did exhibit high levels of trust even at the very beginning of the project. Analysis of emails showed that members of high trust teams began the collaboration process with "confidence and optimism" even though they had no direct evidence of the trustworthiness of other team members. In these global virtual teams, category-based trust seemed to develop quickly.

This work suggests that trust can emerge even in situations where team members are geographically distributed and limited to electronic communication. In such situations, teams form "virtual trust", another variation of category-based trust, which enables them to base their judgements of the trustworthiness of others not on interaction or experience, but on common group membership. As military teams are likely to become even more dependent on using distributed networks to accomplish their missions, it is important that trust can emerge even in widely distributed teams without a shared social context.

7.4 Ad-hoc vs. Fixed or Appointed Teams

Infantry soldiers most often function as members of relatively fixed teams. In military settings generally, however, ad-hoc teams are often formed to address specific problems. Some members of an infantry team, for example, may be asked to join together with soldiers from another unit to build a bridge joining the two units.

Existing trust theory provides some suggestions about how trust in fixed and ad-hoc teams might differ. In general, fixed teams may be expected to have the opportunity to have developed trust to a greater degree than ad-hoc teams, because of a longer history together. As there is more time to observe the behaviour of others and to both create and share values and experiences, members of fixed teams are more likely to have more opportunity to build person-based trust. On the other hand, developing trust in ad-hoc teams is likely to be more difficult. Ad-hoc groups typically have a shorter life span than fixed teams, and do not necessarily have any hope of working together in the future. The time-limited nature of ad-hoc teams would seem to provide less opportunity for the development of person-based trust.

Work by Meyerson, Weick and Kramer (1996) suggests that temporary ad-hoc teams are more likely to use category-based processes to making trust-relevant judgements about others. Of course, not all ad-hoc teams face the same kind of time pressure that temporary teams face, but it does seem likely that category-based processes will dominate at least the early stages of ad-hoc teams. As they are assembled for a specific purpose, for example, there may be more need to focus immediately on the task at hand, rather than getting to know their fellow members in a personal way. Of course, if the ad-hoc team has the time necessary for prolonged interaction and experience, even ad-hoc team members may initiate the development of person-based trust. As a whole, however, the work by Meyerson et al., (1996) suggests that people in temporary ad-hoc teams are likely to work to resolve issues of trust quickly and efficiently by conferring category-based trust based on group membership and identification.

This work suggests that within a military environment, forming even temporary ad-hoc teams does not necessarily preclude the development of trust. Whether members of ad-hoc teams are able to immediately trust each other, of course, is likely to depend on the degree to which team members see themselves as belonging in the same group as the other soldiers in their teams.

7.5 Team Diversity

Although infantry teams are similar in many ways, infantry team members are likely to face some forms of diversity within their team, and in the larger military environment of which they are a part. Due to increasing diversity within Canadian society generally, for example, members of small military teams may face cultural diversity within their own team, or in interacting with other military teams. Diversity in life experience, gender, age, as well as differences in cultural, personal values or socioeconomic status are also likely to be common issues. The vast range of skills, education and experience within a military environment is another form of diversity that infantry soldiers are likely to encounter as they come into contact with other teams from different specialties (e.g., artillery soldiers or engineers). Military teams often face considerable diversity in the course of missions and operations. Recent Canadian multinational peacekeeping operations, for example, have encountered considerable racial and cultural diversity (Dallaire, 2000).

Diversity within teams has both positive and negative effects. Knouse (1996), for example, argues that diversity may facilitate more creative approaches to solving problems and allow a higher level of synergistic efforts to be directed toward group goals. Diverse teams that are functioning well also seem to use the strengths of their members to enhance group performance, focusing on both commonalities and individual differences when necessary. On the other hand, diverse groups may also have less cohesiveness because of differing backgrounds, and have less interpersonal similarity and common experiences to rely on to promote mutual attraction and motivation to work together (Berscheid and Walster, 1978; cited in Mayer et al., 1995). On the other hand, diverse groups also take longer to solve problems and may communicate less effectively (Knouse, 1996).

The issue of how diversity impacts on trust has not received much empirical attention. The only available empirical research stems from the organizational trust literature and suggests that workgroup diversity (e.g., minorities, disabled people, etc) is most conducive to trust when at moderate levels (Knouse, 1996). Despite the apparent lack of empirical research, however, there is theoretical agreement that diversity makes the development of trust more difficult (Porter, 1997, Griggs and Louw, 1995, Jarvenpaa and Leidner, 1999).

Certainly, cultural diversity is likely to be an issue in the environments within which military teams function. An important paper by Doney, Cannon and Mullen (1998) provides a theoretical analysis of the impact of national culture on the development of trust. Their work focuses on how the cultural traits shared by groups influence the development of trust. They argue that two trends have been the impetus for understanding trust and culture. First, there has been increasing interest in how cultural differences impact on performance generally. Secondly, increased globalization has broadened the need to consider cultural diversity. Doney et al. (1998) define culture as

> *"a system of values and norms that are shared among a group of people and that when taken together constitute a design for living"*

Doney et al. (1998) argue that a culture's values and norms serve as a base for people's behaviour and beliefs. Further, they argue that as different cultures have different values and norms, the

processes that people use to make judgements about the trustworthiness of others will also vary between cultures.

There are several different processes by which trust is developed, and each process is associated with underlying behavioural assumptions, as presented in Table 7.1.

Table 7.1 – Trust building processes and underlying behavioural assumptions

Calculative – Trustor calculates the costs and rewards of a target in an untrustworthy way	Individuals are opportunistic and seek to maximize self-interest
Prediction – Trustor develops confidence that a target's behaviour can be predicted	Individual behaviour is consistent and predictable
Intentionality – Trustor evaluates a target's motivations	Individuals are motivated to seek joint rather than personal gain
Capability – Trustor assesses a target's ability to fulfill promises	Individuals differ in their competence and expertise, hence, in their ability to fulfill promises
Transference – Trustor draws on proof sources from which trust is transferred to a target	Individuals and institutions can be trusted; connections in a network are strong and reliable

The extent to which the behavioural assumptions associated with each trust-building process are tenable within a given culture will determine the likelihood of developing trust using that process. Within a particularly individualistic culture, for example, people are more likely to form trust using a calculative process, as the values and norms are consistent with an exchange orientation, or with self-serving motives. This is not the case in collective cultures, where opportunistic behaviour runs counter to the "we" consciousness. People in individualistic cultures also focus on the abilities of the individual and are more likely to use judgements of a person's capability in determining trust. This is less likely to occur in collective cultures, where group rather than individual achievement is valued. The process of building trust based on the predictability of others is likely to be prominent in collective cultures that value behavioural conformity rather than individuality and distinctiveness. Similarly, people in collectivist cultures are also more likely to use intentionality in forming trust, as group members are commonly held to have benevolent motives toward each other, whereas in individualistic cultures, people are often seen to play more adversarial roles. Lastly, transference processes are more likely in collectivist cultures because of a tightly knit social network that does not exist in individualistic cultures. In any given culture or cultural group, then, the processes that people use to develop trust are a product of the values and norms that define proper behaviour within the culture.

Doney et al. (1998) also argue that "*when trustors and targets share the same norms and values, there is a greater chance that a trusting relationship will form because the direction the target takes to trust is the same route the trustor follows to establish whether the target is trustworthy*". If two people share the same values, they are more likely to trust because they are using the same processes in order to gauge trustworthiness. On the other hand, cultural diversity is likely to hamper trust development. As cultural differences are also associated with different values and norms, developing trust is likely to be more difficult and a greater amount of time may be needed to bridge dissimilar values and norms.

Cultural diversity may also play a role in how members of diverse teams make judgements of trustworthiness. Work by Porter (1997) argues that the qualities most valued by people in making trust judgements about others vary between cultures. In a highly individualistic culture, for example, Porter argues that the focus is more on agency rather than interdependence. Team members from these cultures are more likely to use traits like competence, consistency and integrity in making judgements about trustworthiness. People from more interdependent or collective cultures put more emphasis on loyalty and openness, and are likely to use these traits rather than agentic traits in considering whether to trust other team members. Porter (1997) emphasizes the importance of diverse teams taking the time to communicate about their differences. This communication must be done carefully, as raising the issue of how to build trust may imply to some people that no basis or foundation of trust exists (Porter, 1997). Rather, the discussion should begin with a discussion that emphasizes the existing basis of trust before exploring how to improve trust further.

Griggs and Louw (1995) also argue that work teams with ethnically diverse members take longer to establish trust because these teams must set standards and establish rules for acceptable behaviour within their groups. Although team diversity makes trust more difficult to develop, however, taking time to resolve the issues of trust within diverse teams yields the ongoing benefit of unique perspectives. Griggs and Louw suggest that the creation of effective diverse teams is partly dependent on team members being aware of their own personal patterns, stereotypes, prejudices and biases. Self knowledge and awareness can be promoted using self assessment tools that allow team members to explore their ways of thinking and communicating with others, and the stereotypes that may influence their perceptions of others. Moreover, Griggs and Louw (1995) also suggest that promoting an environment that allows for team members to work through the implications of diversity with open communication is also critical to developing trust in diverse teams.

The work reviewed suggests that in the context of small infantry teams, diversity may present potential challenges to trust. People with diverse backgrounds and experiences have less to draw upon in order to make confident predictions about others. It may be more difficult for an infantry team member to develop trust in a member of the artillery team. Similarly, when team members come from dissimilar ethnic backgrounds, differences in value systems and established norms may make trust development more difficult, and may change both the qualities that they look for in judging the trustworthiness of others, and the ways that team members work to establish trust. Before entering operations, it may be important for military teams to receive specific information about the status of the culture on various dimensions (e.g., individualism vs. collectivism etc.), in order to be most effective in knowing how best to build trust with people from diverse cultures. Certainly diversity is likely to present some obstacles to the development of trust within military teams.

On the other hand, the literature also suggests that diversity need not always thwart the development of trust. In work by Jarvenpaa and Leidner (1999), for example, diversity in cultural background did not impact on the extent to which trust was developed in "virtual" teams. Individuals from individualistic cultures developed as much trust in their teammates as did people from collective cultures. The observation that cultural diversity does not always impact on trust parallels work showing that cultural diversity does not always impact on more global information processing (O'Shea and Landis, 1999). As O'Shea and Landis argue, the frequent effects of cultural identity on judgement may be undone by direct and personal contact with individuals. When confronted with a person from another culture, for example, trust may not be affected if a cultural identity (which has

negative implications for trust) is not at the forefront of one's impressions of that person. If people are understood in terms of their personality traits rather than their culture, trust may not be negatively affected. Indeed, whether diversity impacts on judgements of trust in a given situation may depend on the strength and salience of categories and stereotypes (Kramer, Brewer and Hanna 1996). Although there may be situations in which cultural diversity plays a role in judgements such as trust, this will not always be the case.

The potential barriers to trust that may initially exist within diverse teams can also be overcome with prolonged interaction and exposure. Griggs and Louw's (1995) account of trust within diverse teams suggests that these negative stereotypes may be overcome by direct and personal contact. This work has important implications in the context of infantry teams, as it suggests that diversity need not affect trust negatively once team members have the opportunity to interact, and to work through some of the barriers to trust that diversity presents.

Motivation and opportunity are likely to play key roles in trust within infantry teams. If a person is truly motivated to come to know another person, the potential psychological distance created by diversity may be possible to bridge. This assertion is supported by stereotype research showing that people who are motivated not to activate negative stereotypes are sometimes able to process the information about another person on a personalized level rather than stereotyping this person (Kunda and Sinclair, 1999). The motivation not to let negative stereotypes impact on our judgements of others is sometimes related to instrumental goals such as needing something from them (Kunda and Sinclair, 1999) but can also be motivated by personal values that dictate treating other people fairly despite diversity.

Within small infantry teams or within military contexts generally, it is important to proactively counteract the potentially negative effects of diversity on trust. Communication about the diversity and team members working together to understand each others' perceptions seem key to managing diversity (Griggs and Louw, 1995; Porter, 1997). Another way to counter the negative effects of diversity, of course, is to promote identification with others. As Brewer (1995) argues, organizations have long attempted to establish a basis of identification and a sense of shared membership with the organization, in order to control the impact of many different forms of workplace diversity. Within the context of small teams, then, establishing an overarching military identity may be an excellent way to counter the potentially negative effects of diversity on trust. This identity should also promote the values and the vision that motivate the development of trust.

7.6 Summary and Research Implications

Overall, it is clear that small infantry teams face a number of other challenges in forming and maintaining trust, because of the contexts in which they function. Physical and psychological pressures, instability in team composition, lack of shared social context, and team diversity can all affect infantry team members' ability to form person-based trust. This analysis speaks to the importance of developing trust within teams as a preparatory activity even before teams are in theatre. In basic training, for example, a less chaotic environment and diminished physical stress factors are likely to be more conducive to the interactions needed to build person-based trust.

On the other hand, there is also considerable evidence suggesting that trust can develop in each of these situations as well. When direct and personal contact is not available, trust based on shared membership and identification is still possible. Although the contexts within which infantry teams function pose unique challenges, these contexts do not preclude the emergence of trust. Most

importantly, this analysis suggests that building a common basis of identification within small teams and within the military system as a whole an important way to promote trust, even in the difficult and chaotic environments faced by infantry teams.

The lack of research in this area makes it necessary to establish how physical and psychological stressors may impact on trust development processes. Although informed by existing research to the fullest extent possible, and by related research in areas related to trust, it is still important to note that the arguments are largely speculative. The impact of stressors and team composition factors are important issues that need to be empirically established.

Nonetheless, the work reviewed in this chapter also has the following implications for research:

- The issue of team diversity emerges as an important factor that needs to be considered in designing research that explores trust in small teams. Cultural diversity, for example, can alter trust development processes and the dimensions that are seen as most important in making judgements about others. It will be important to both establish what aspects of diversity are likely to be most relevant within military teams in a given situation, and to control the relevant aspects of team diversity.
- It seems reasonable to assume that the greater the diversity within a team, the greater the potential for conflict. This suggests that military teams composed of different specialties (such as command teams) will be more prone to such problems than low diversity single arm teams such as an infantry sections, and will need to pay more attention to trust building. This issue needs to be explored further.
- The literature reviewed in this section suggests that different levels of the military are likely to use different trust development processes. Imagining low diversity, single arm small teams at the centre, with increasingly broadened contexts (e.g., platoons, battalions etc.) and increasingly diverse forces, it may be that small teams are most likely to use person-based processes, with decreasing use of person-based processes with greater diversity and less personal contact in the broader contexts. This issue needs to be explored empirically in the longer term.
- It is critical to consider the role of motivation and the current processing goals of small team members in making judgements of trustworthiness. The reviewed research suggests that, when dependent on another person, people may be more likely to use person-based processes in order to establish trust judgements about other people. Even in situations that might otherwise predict category-based processes (e.g., time pressure), people may take the time needed to develop more accurate impressions. This is extremely important for small teams, as it suggests that accuracy can be improved by motivating people to take more time to develop their impressions of others. It also suggests that varying the processing goals in simulations may influence the kinds of information that soldiers attend to in making judgements. An important example of this may be examined in adhoc vs. fixed teams. In adhoc teams, where timelines are very tight, and the goal very discrete, people may work to discern trustworthiness only on the dimensions that are immediately relevant to the task at hand. In teams with a longer mandate, on the other hand, people may work toward a more complex and integrated view of other team members, as a way of ensuring that they have developed a broader set of predictions about others.

- Shared goals are also seen as promoting the development of trust. It is important to examine the potential impact of shared goals on overcoming some of the challenges that diversity (e.g., cultural) may present. It may be the case that shared goals could produce the motivation to overcome cultural stereotypes that have negative implications for trust.

Chapter 8 – Trust and Leadership

As a number of the articles gathered for this review addressed the important issues of trust and leadership, and as leadership is critical in the context of small military teams, it is important to address the literature pertaining to trust and leadership. This section begins with an examination of the factors that influence trust in leaders, and then explores the impact of both subordinates' trust in leaders as well as leader trust in subordinates.

The impact of excellent leadership on trust is best represented in a quote related by Hoffman (1998) about soldiers seeing General Patton as he rode into their camp:

> *"the sight of their general sent a wave of confidence surging through the whole division, and as his jeep passed the tanks and half-tracks, the mobile guns and truckloads of soldiers, their wild cheering was for victory already won because they trusted him".*

As this quote suggests, trust in a leader can have considerable influence. To this point, however, descriptions of how trust develops have been limited to interactions within infantry teams. It is also important to explore military teams' trust with their leaders. This raises the important issue of whether trust in lateral or equal status relationships is similar to trust in hierarchical relationships. Work by Bonoma (1976), for example, suggests that whereas trust in lateral power systems is likely to based in positive caring and concern, trust in hierarchical power systems is more likely to be based on threat. It is important to explore trust in the context of hierarchical, leader/subordinate relationships.

8.1 Factors Affecting Trust in Leaders

Certainly, many of the same factors that impact generally on trust in other people are also likely to impact on followers' trust in their military leaders. As person-based models of trust suggest, a leader's competence, benevolence and integrity are likely to play a role in the degree to which trust is conferred on the leader (Mayer, Davis and Schoorman, 1995). Several studies provide empirical evidence that the competence, benevolence and integrity of leaders predict the trust that they inspire on the part of subordinates.

A study by Sweeney (1996), for example, explored the impact of leader competence on attributions of leader dependability. A study with freshman cadets showed that perceptions of hypothetical leaders' competence were the strongest determinants of judgements of the leaders' dependability (Sweeney, 1996). Even more importantly, these judgements of dependability were also significantly positively correlated with the trust conferred on the leaders.

Followers who feel understood by their leaders see their leaders as more trustworthy. As part of a larger study, Britt (1999) asked soldiers from a deployed artillery unit and a unit in garrison to rate several statements relevant to their perceptions about their work as soldiers. These statements concerned the extent to which they felt control over their performance (e.g., *I have personal control over my job*), the extent to which they felt clear guidelines existed for their missions, and the extent to which they saw their roles as soldiers to be an important part of their identity. Soldiers were then asked to assess the same dimensions from the perspective of their leaders using the item, *"My unit leaders think....I have personal control over my job"*. In addition, soldiers also completed a

measure used in previous research to assess trust and confidence in unit leaders and bonding. Scale items included "*I am impressed by the quality of the leadership in my company*" and "*My superiors treat me as a real person*".

The discrepancy between soldiers' perception of their work and how the soldiers viewed their leader's perception of their work were then related to levels of trust in the leader and bonding. Results showed that when soldiers saw no discrepancy between how they saw themselves and how they believed leaders saw them, trust and bonding were high. On the other hand, any other discrepancy (whether the soldier was more positive than they believed the leader would be, or vice versa) was associated with lower levels of trust and bonding. As such, feeling understood by their leaders promoted subordinates' levels of trust in the leader. Of course, it is impossible to establish the direction of causality. It is possible that high levels of trust set the stage for feeling more understood and validated. It is also possible that feeling more understood led to attributions of more trustworthiness. Whatever the case, the relationship between the trust of followers and perceived understanding on the part of leaders is an important one.

A leader's integrity and fairness also promotes the trust of subordinates (Korsgaard, Schweiger, and Sapienza (1995). Intact management teams participated in a training session about strategic decision making. Equal status team members worked together to evaluate and make recommendations about a case analysis, and provided input back to the team leader. Each team leader then made a final decision about the problems presented in the case study.

When team leaders showed high consideration of each team member's input, team members exhibited higher trust in the leader, greater attachment to the team and greater commitment to the decision. On the other hand, team members whose input was not considered by the leader showed less trust in the leader. It is also important to note that leaders who allowed members' input to influence their decisions not only garnered more trust from their subordinates, but also made better quality decisions than leaders who did not accept such influence. Moreover, the relationship between a leader's consideration of the input of team members and trust was shown to be fully mediated by procedural fairness. This suggests that leaders who consider team members' input in making a decision are trusted because they are perceived to be more fair. Overall, this study shows that subordinates' trust in a leader when making decisions is enhanced when subordinates feel they have had meaningful participation in making the decision.

The importance of leaders being seen as fair and benevolent to their subordinates is echoed in work by Cangemi, Rice and Kowalski (1990). Cangemi et al. argue that trust in leadership is developed through positive and consistent leadership behaviours. These behaviours include seeking input from subordinates, being fair, providing honest and open communication and being concerned about employees.

Lastly, a military field study by Thomas and Barios-Choplin (1996) depicts in more explicit detail how leaders elicit the trust of subordinates within real-life military units. Thomas and Barios-Choplin (1996) conducted interviews with 16 Troop Program Units, company-level units in the U.S. Army reserve. These units were chosen on the basis of having either high or low attrition rates. Commanders, officers, unit administration staff and soldiers participated in interviews designed to identify the factors most critical to effective leadership within military units.

Results from the interviews with personnel in both effective and ineffectively led units showed a number of important differences in how effective commanders earned the trust of their followers.

Leaders' concern with expertise, fairness and their values appeared to play a role in earning the trust of their men.

Effective commanders were concerned about how their subordinates would view their expertise even at very early stages of command. Effective leaders promoted trust by developing expertise in new technical specialties. They performed activities such as taking advanced courses, mastering field manuals and having non-commissioned officers conduct training sessions for the commander and other officers. As a whole, effective leaders provided their followers with direct and observable evidence of their competence, while also exhibiting clear motivation to be competent. Thomas and Barios-Choplin argue that this concern with competence played an important role in promoting followers' trust of their leaders.

Leader fairness was also an important source of trust and confidence for effective leaders and of anger and disrespect for less effective leaders. Effective leaders indicated the need to "lead by example" and worked to ensure that they participated in many of the difficult exercises and training expected of soldiers. Effective leaders did not accept special privileges that soldiers did not have. In all, effective leaders also earned trust by ensuring consistency between their words and their actions – if they argued that training was important for their men, they took the training too. Ineffective leaders, on the other hand, made up different rules for favoured followers. This lack of fairness on the part of ineffective leaders impacted negatively on followers' trust and respect in the leader.

The values expressed by commanders also had a significant impact on soldiers' trust toward the leader. The values shown to be the most relevant during interviews were values related to missions, standards and accountability, and soldier care. Trusted leaders showed themselves to be committed to their missions and emphasized it to be the fundamental purpose of their work. Less trusted leaders, on the other hand, were perceived as *"paying lip service to the mission and being more interested in their own careers"*. The attributions that subordinates made about their leaders' true mission-related motivations played an important role in the trust conferred on the leader.

Effective leaders also valued their soldiers. Trusted leaders spent time learning about their soldiers and what they cared about. This included exhibiting concern for practical issues, as well as showing soldiers that they *"genuinely cared as individual human beings"*. Moreover, Thomas and Barios-Choplin (1996) also argue that the individual bonds formed in commander/soldier relationships became embedded within the larger company climate, and that soldiers felt they belonged in and valued within their units. This, of course, created greater cohesiveness and trust within the unit.

Effective leaders were also concerned with high standards and with ensuring accountability within their units. They also set high standards for themselves, by being concerned with quality and refusing to cut corners. They honoured their commitments to soldiers and requested feedback on their own performance. As well, effective leaders recognized a need to enforce standards and goals. This included, for example, physical training, attendance at drills and equipment readiness. Effective leaders also seemed to believe that *"soldiers' willingness to meet their commander's standards depended on commanders meeting the soldier's standards"*, and were personally involved in ensuring that they met the standards expected of their soldiers as well.

Thomas and Barios-Choplin (1996) also suggest that promoting trust is not only critical to the relationships between leaders and their subordinates, but that it also promotes a positive command climate. Moreover, they also argue that a positive command climate, in turn, improves both combat readiness and longer retention of troops. On one hand, leaders are responsible for guiding military

teams toward their goals. At the same time, however, a leader is also responsible to build the team climate that will enhance trust (Hoffman, 1998). This is consistent with leadership theory generally, which suggests that the role of a leader is to work to ensure a positive internal work climate, as well as ensuring outward team performance and accomplishment (Isgar, Ranney, Grinnell, 1994).

This work has important implications within a small infantry team context. It suggests that trust can be facilitated by direct and personal contact with leaders, and by knowledge about their competence, benevolence and integrity. Moreover, this work also shows that trust not only promotes more positive interactions between leaders and followers, but that the positive climate that leaders help to build is likely to benefit how military teams actually perform.

More globally, the literature reviewed to this point suggests that many of the same processes likely to influence the development of person-based trust in lateral, equal status teams also influence the development of trust within hierarchical leader/subordinate relationships. The research reviewed to this point, however, addresses only direct leadership one level up. It addresses most but not all of the leader/follower dynamics likely to be relevant in small infantry teams.

8.2 Leaders and Category-Based Trust

In the context of small infantry teams, direct contact with a sergeant that leads the unit may represent the only contact that infantry team members have with military leaders. Direct contact with leaders at the upper levels of command will occur only infrequently if at all. Despite this lack of contact, however, it is critical for infantry soldiers to place trust in all levels of the military hierarchy, as only this trust will enable management of the risk, vulnerability and uncertainty inherent in military operations to the fullest possible extent.

Leaders are in a unique position to promote trust, as they stand at the boundary of two different relationships (Hart, 1988). On one hand, leaders can develop direct and personal trusting relationships with subordinates. Moreover, being directly available to subordinates, they can work with subordinates to correct potential disagreements and misunderstandings that may arise in collective settings (Hart, 1988). In many ways, a leader's behaviour is also representative of the level of trustworthiness within the entire organization. In this sense, leaders have a unique capability of being exemplars for the category of "leader", by expressing the values of the systems that they represent, and can provide compelling evidence of the system's values and priorities in action (Hart, 1988). This category will be the basis of expectations and beliefs about leaders generally, and it will serve as the basis of trust (or mistrust) for soldiers in situations where direct and personal contact is not available. Geographic dispersion and sheer numbers of infantry soldiers obviously preclude frequent contact with leaders. In the absence of this contact, however, it is critical that the "category" that leaders create during direct contact with soldiers shows them to be worthy of trust. Put another away, it is critical that leaders at all levels are good role models that inspire trust in their soldiers regardless of the physical distance between them.

8.3 Impact of Trust In A Leader

To this point, discussion has focused on trust as an outcome of leader behaviour, and on the ability to promote trust as an important characteristic of effective leadership. Trust between leaders and their subordinates, however, is not only unidirectional. It is also important that leaders both trust their followers and feel trusted by their followers.

A leader's ability to trust their followers may also be an important factor in military operations. Work by Thomas and Barios-Choplin (1996), for example, suggests that leaders who trust their subordinates are more likely to delegate. Interviews in both units with both effective and ineffective leadership showed that effective commanders delegated less in the early stages of operations, but delegated more in later stages after soldiers internalized more standards. After taking time to assess the competence of their men, effective leaders were more likely to place trust in them and to allow them to stretch their skills. Leaders who failed to delegate to others were forced to assume a higher level of responsibility for practical decisions and became "micromanagers" instead of effective leaders. Thomas and Barios-Choplin (1996) also argue that low leader trust became part of a downward spiral. Failing to delegate precluded soldiers showing their abilities to the commander, apparently reinforcing the commander's lack of trust, and prompting the commander to make more decisions independently. Thomas and Barios-Choplin (1996) argue that a leader's trust in subordinates has important impacts on the subordinates' ability to perform to their potential, as well as on leaders' ability to lead effectively.

The impact of subordinates' trust in a leader is also an important predictor of how leaders behave. Work by Atwater (1988) suggests that trust of subordinates plays an important role in predicting supportive leader behaviour. Almost 100 preexisting work triads, comprised of a supervisor, the supervisor's superior and a subordinate completed questionnaires at each level measuring trust and loyalty toward the supervisors as well as various personality traits of supervisors, job characteristics, and expectations of subordinates and supervisors. Overall, the study focused on identifying the factors that best predicted either supportive or demanding supervisory behaviour.

Results showed that subordinates' trust and loyalty toward their supervisors were the two best predictors of supportive supervisory behaviour, and were even more important than leaders' personality characteristics and job characteristics. This work provides important evidence of the reciprocal nature of trust. Clearly, it is not only important for a leader to inspire trust in subordinates, but the trust conferred by subordinates may also be an important factor in how leaders execute their roles.

8.4 Summary and Research Implications

Trust clearly plays a critical role in the relationships between military teams and their leaders. There are, however, many more questions about the relationship between trust and leadership that are currently unanswered in the available literature. Trust researchers have yet to address the issue of how differential levels of empowerment within teams (e.g., rank) will impact on the development of trust. As well, trust can develop in both equal status relationships and in hierarchical relationships, but there is no way to know whether these two forms of trust are similar in strength or longevity. These important questions remain for the future study of trust and leadership.

The material reviewed in this section suggests that:

- Person-based trust in leaders is promoted by competence, benevolence and integrity
- Effective leaders work consciously and deliberately to garner the trust of their followers, by ensuring their competence
- Leaders contribute to trust within small teams by building a positive command climate

- Trust between leaders and followers can be reciprocal. Trust toward leaders on the part of followers also predicts supportive leader behaviour
- Category-based trust in leadership is also important, and having strong and salient models or exemplars of leader excellence (e.g., Patton) may promote identification and trust within small teams
- A leader's trust in followers can impact on the leader's tendency to delegate. Leaders who have high trust for their subordinates are more likely to delegate, because they have confidence in their skills. Failure to delegate may hinder both a leader effectiveness and create self-perpetuating cycles when failures to delegate preclude followers from showing that they are competent

Chapter 9 – The Effects of Trust

Once developed, trust has a wide range of impacts. This section reviews the effects most relevant to small teams in the reviewed literature. The first part of this section explores the role of trust in several important social processes. The second part of this section reviews research exploring the role of trust on actual team performance.

9.1 Defensive Monitoring

Trust is frequently cited as reducing the need for defensive monitoring of trust partners (e.g., McAllister, 1995; Currall and Judge, 1995; Strickland, 1958). The term "defensive monitoring" refers to observing others' actions in order to assess whether they are matching one's expectations. Behaviours that are indicative of defensive monitoring include making requests for help ahead of the time it is needed, or drawing upon multiple sources of redundant information (Currall and Judge, 1995). Defensive monitoring occurs in relationships where trust is in question and is used to protect oneself from negative outcomes caused by a violation of trust, and to guard one's interests from the opportunism of others (Holmes, 1991). Once trust is established, however, trust theorists argue that predictability of another person's behaviour (McAllister, 1995) and motivations (Holmes, 1991) lessens the need for constant vigilance. Moreover, although yet to be established empirically, defensive monitoring is also hypothesized to directly affect task performance, as it directs attention away from the task at hand, leaving fewer resources available to accomplish primary work objectives (McAllister, 1995).

The assertion that trust reduces the need for defensive monitoring is critical within the infantry team context. Team members who know their teammates, and who have come to trust in their teammates' abilities and motivations are less likely to need to defensively monitor them. Paying less attention to one's teammate, and more to the task at hand is critical in an infantry unit. Defensive monitoring may also come into play, of course, if leaders do not trust their subordinates to perform competently and with the proper motivations.

On the other hand, it is important to note that eliminating defensive monitoring altogether could pose a potential hazard if it leads to failure to "update" views of a partner in light of new information relevant to trustworthiness. It seems critical to receive regular confirmation that one's teammates are fulfilling their roles in a trustworthy way. As such, it is perhaps important to make a distinction between truly defensive monitoring and monitoring that is geared toward ensuring coordination of effort.

9.2 Need for Controls

Also obviously closely related to defensive monitoring, trust is also argued to reduce the need for controls. Controls, of course, refer to mechanisms that guide or regulate systems. The argument that trust reduces the need for controls has been framed at more of a organizational level, rather than at an interpersonal one (e.g., Zaheer, McEvily, and Perrone, 1998). At an organizational level, trust is built on and simultaneously promotes common norms and standards between people, negating the need for more institutionally legislated controls. These norms and standards, of course, are both explicit and implicit. People within organizations are able to make assumptions about how

others are likely to behave without continually enacting formal rules and controls to ensure that people act in trustworthy ways (Kramer, 1999).

The assertion that trust reduces the need for controls is particularly important in a military context. Small teams frequently need to function in environments without direct supervision from their leaders. In situations where direct and personal leadership is not possible, trust may allow leaders to step away and believe that the mission will be accomplished as planned. Trust may lessen the need for hierarchical control to be enacted within military settings.

9.3 Cooperation

Cooperation is also facilitated by trust (Meyerson, Weick, and Kramer, 1996; Rousseau et al., 1998). This cooperation may involve contributing time and attention, sharing information or using restraint when using limited group resources (Kramer, 1999). Trust may improve cooperation because willingness to cooperate is often predicated on expectations that others will do the same (Kramer, Hanna and Brewer, 1996). As trust increases predictability, it also provides information about whether cooperation is likely to yield positive benefits.

There is some empirical evidence that trust leads to higher levels of cooperation. The majority of this research, however, appears to stem from game simulation studies, ranging from studies of the prisoner dilemma's game (e.g., Deutsch, 1958), to more elaborated social dilemma studies exploring paradigms such as "tragedy of the commons" (Kramer and Brewer, 1984).

Work by Messick, Wilke, Brewer, Kramer, Zemke and Lui (1983) is typical of more elaborate studies of social dilemmas. This work looked at the role of trust in people's willingness to voluntarily cooperate in reducing their consumption of a rapidly depleting pool of resources. In this study, trust was operationalized as individual's expectations of reciprocity (i.e. their belief that if they showed cooperation, others would do the same). Results showed that people who expected restraint from others were more likely to use restraint themselves, and that individuals who did not expect reciprocity showed considerably less self-restraint. On the other hand, when resources were plentiful, there were no differences in consumption between groups with high and low expectations of reciprocity. This study suggests that, when resources are scarce, people are more likely to cooperate with others when they see others as being equally likely to consider their needs.

Although these kinds of studies are cited as providing evidence that trust improves cooperation, however, other trust theorists have argued that such work is based on a conceptualization of trust as merely cooperative behaviour (e.g., Mayer et al.,1995). It is not clear in these studies whether individuals responded cooperatively because they trusted their "partners" or whether they had other motives (Hosmer, 1995). Trust, as a psychological state, is not typically measured in these studies.

There is some evidence from research measuring trust as a psychological state that trust does improve cooperation. Brann and Foddy (1988) used a simulated social dilemma to explore the impact of trust on cooperation in a resource pool depletion task. Participants' propensity to trust was measured used Rotter's Interpersonal Trust scale (1980). Participants were then lead to believe that a shared resource pool was undergoing either minimal decline or rapid depletion. Low trust participants showed the same consumption of collective resources regardless of the rate of decline. High trust participants, on the other hand, adjusted their consumption of resources and showed restraint when depletion was expected to be high, but less restraint when expected resources were

low. This work provides some evidence that an individual's propensity to trust affects cooperation with others.

On the whole, however, the available trust literature suggests that although there is some evidence that trust leads to cooperation, this assertion has yet to be convincingly established in a non-artificial setting. This issue remains an important question for research to explore in more naturalistic settings and is of considerable interest in the military domain. As the success of military operations is predicated on team members working cooperatively, knowing how trust may impact on this is crucial.

9.4 Communication

Trust also plays an important role in improving communication. Trust theorists have argued that trust may promote the sharing of information by promoting an interpersonal environment that is more open and honest and which precludes the need to filter information (Currall and Judge, 1995).

A workplace study by Worley, Bailey, Thompson, Joseph and Williams (1999) suggests that trust is an important predictor of open communication within organizations. This study was conducted during implementation of a new computerized storage and retrieval system at the Federal Aviation Administration's (FAA's) Civil Aviation Registry in the United States. This study examined the role of several organizational variables, including organizational trust, supervisory leadership, workgroup cohesion and acceptance of change, in predicting employee's perceptions of open communication during the changeover period. Agency employees completed surveys measuring these variables as well as their perceptions of the openness of communication with their agency during the critical changeover period.

Results showed organizational trust to be the most important predictor of open communication, surpassing supervisory leadership style, cohesion and acceptance of change. The level of trust within an organization was the most important predictor of employee's perceptions of open communication during a changeover period in their organization. This study suggests that organizations with high trust are likely to promote an environment of open communication. Applied to the context of small teams, this study also suggests that even in particularly chaotic environments such as those encountered by small infantry teams, trust may play an important role in keeping the lines of communication open.

Other empirical evidence suggests that trust facilitates communication by freeing up the transmission of information. Work by O'Reilly (1978) indicates that trust can impact on both the amount and the kind of information that is communicated to others.

In a two related studies, university students were asked to role play a position as either a subordinate, superior or peer within an organization and to consider a business problem with a hypothetical business partner. They were told that the goal of the exercise was for them to provide their partner with the best possible information to help their partner make a good business decision. Senders were provided with precoded items of information, created to be either directly relevant or irrelevant to the business problem, and to reflect either favourably or unfavourably on the sender's performance. The degree to which senders trusted their partners was also manipulated to be either high or low. Senders received biographical information that showed their partner to be either unworthy of trust, or a fair person who could be trusted to take the needs of others into account. Senders then chose which items of information to give to their business partner.

Results showed that when trust was high between superiors and subordinates, subordinates transmitted more items of relevant information that reflected unfavourably on them, and also chose to sharpen personally unfavourable but important information. Under conditions of low trust, on the other hand, subordinates generally showed a tendency to suppress or level unfavourable information, and sharpened favourable information. This suggests that high trust facilitated more open and more accurate communication to a leader, even if the information reflected negatively on the subordinate. These findings suggest that high trust may free up the transmission of information from subordinates to their leaders.

The fact that subordinates passed information to leaders that they deemed important even though it reflected unfavourably on them is an important finding. It suggests that trust can eliminate some of the barriers to communication in relationships with others by providing a safe environment in which to share even unflattering information. When trust is in place, this may enable individuals to focus on the task at hand rather than on self-presentation. This study also suggests that low trust in a supervisor-subordinate relationship may prompt the subordinate to selectively present favourable information.

This issue is especially important within the military domain, as the transmission of accurate and complete information between infantry teams and their leaders is crucial. High trust between leaders and followers seems critical in order to ensure complete and accurate communication.

9.5 Conflict

Trust is also commonly seen as reducing conflict and friction in both interpersonal and work relationships (e.g., Zaheer, McEvily and Perrone, 1998). There are many different theoretical accounts of how trust reduces conflict. Porter and Lilly (1996) suggest that trust within a group may reduce the conflict in two ways. First, trust may reduce the desire to challenge the views of other group members, and may also increase the ability of the group to use normative pressures to deal with dissent or conflict that emerges. Trust may also lessen conflict by impacting on the attributions that are made about others. People are, for example, more likely to give the benefit of the doubt in making attributions about the motives of other people that they trust (Holmes, 1991).

A study by Simons and Peterson (2000) shows the important role of trust-related attributions in reducing conflict in work relationships. This work explores the role of trust in management teams and makes an important distinction between two forms of conflict. Simons and Peterson argue that when conflicts within a work setting occur, these conflicts can be interpreted as either task conflict (involving specific disagreements between group members about the content of their decisions), or as relationship conflict (a more global conflict, centered on issues of interpersonal compatibility). Moreover, Simons and Peterson argue that trust can determine how workplace conflicts are construed.

One hundred top management teams from a hotel administration association completed surveys measuring task conflict, relationship conflict and intragroup trust (measuring perceptions of group-wide expectations of truthfulness, integrity, respect for competence etc). Measures were aggregated within each management team.

Results showed that when trust is low within a group, ambiguous information that might otherwise be construed as relevant to task conflict is interpreted negatively, and team members infer conflict behaviours as representing sinister interpersonal motives of others. When trust is low, task conflict

triggers relationship conflict. On the other hand, when trust within teams is high, members are more likely to attribute conflict to the task-centred disagreement, and are less likely to interpret task conflict as reflecting a personal attack or hidden agenda. When trust is high, then, even ambiguous conflict behaviour is interpreted more positively, and is not attributed to negative global motives on the part of team partners. Trust moderates the relationship between task conflict and relationship conflict within work teams by impacting on the attributions that people make about task conflict.

This is an extremely important finding when applied to the context of small military teams, partly because of the high levels of interdependence. Infantry teams spend considerable time together, both in the course of their duties and in living arrangements. With this high level of contact, conflicts have the potential to be much more damaging than in the average work relationships. As such, it is critical to establish trust, in order to ensure that inevitable task conflicts do not give rise to potentially harmful relationship conflict.

To this point, the research reviewed speaks mainly to the issue of how trust influences interpersonal processes, such as how well people interact and relate to each other. The next section reviews the available research that has examined whether trust improves group achievement and performance.

9.6 Group Process and Performance

An early study exploring the impact of trust on performance suggests that trust has a positive and direct effect on team effectiveness (Friedlander, 1970). Twelve existing work teams (each with 5 to 15 members) designed to promote sharing of information, decision making and future planning participated in a study exploring several aspects of work team functioning. Trust (derived as the product of factor analysis and including items such as "*Others in the group are reluctant to sacrifice ideas so that the group may agree*" - negatively scored), group effectiveness, group involvement and group participation were examined.

The study explored whether groups with higher initial trust accomplish more as they work together than teams with lower initial trust. Early group trust emerged as the most important predictor of group effectiveness over time, and was more important than any other early measure of group process (e.g., involvement and participation) in predicting team effectiveness as measured at the end of the study. In fact, early trust was a better predictor of later group accomplishment than was early group accomplishment. As a whole, this study argues that levels of early trust in work teams play a direct role in the subsequent achievement of work teams. This conclusion, however, is tenuous in light of the lack of experimental control, failure to define the key variables (e.g., group effectiveness) and a post hoc measure of trust.

Work by Hughes, Rosenbach and Clover (1983) explored the relationship between team building and group performance. This research used a quasi-experimental design to measure the impact of a team development intervention with a U.S. Air Force Squadron. Cadets at the U.S. Air Force Academy, an institution that provides military training and education in preparation for commissioning, participated in the experiment. Members of several existing squadrons were administered a questionnaire assessing squadron climate and interviews were conducted with senior officers. On the basis of these measures, the two most similar squadrons were chosen, and served as either the experimental group or a control group. The experimental group received an intensive team building intervention over 3 days. This intervention included group dynamics exercises, organizational analysis, self-disclosure exercises, group perception exercises, commander-organization dialogue, and goal setting.

As a whole, these activities were designed to promote team development. The Squadron Assessment Questionnaire, which measures 9 key aspects of climate within a squadron, including trust, squadron cohesiveness, job clarity, confidence in leadership, and commitment to squadron goals was administered both before the intervention and 6 months after the intervention.

Results were analyzed using a 2 (experimental and control) by 2 (pre-test and post-test) analysis of variance. The team building intervention had a positive impact on trust within the squadron, as the squadron that received training showed more trust overall than did the squadron without training. Trust also improved over time, such that trust in both groups combined was higher after the intervention. The lack of an interaction effect on the trust dimension, however, suggests that the squadron receiving the team building intervention did not show unique changes in trust over time. Nonetheless, the intervention did significantly enhance the squadron's job clarity, confidence in leadership, commitment to squadron goals, and satisfaction with the squadron.

Moreover, these changes in squadron climate were also accompanied by improvements in squadron performance. In subsequent ratings of performance in academic, military and athletic areas, the squadron that had participated in team building exercises showed a significant improvement in military and athletic performance.

This study suggests that improving how team members interact and focusing the team on team goals may improve both the climate within teams and team performance. It is difficult to disentangle the unique contribution of trust in this work, as trust was one of many variables that would have contributed to enhanced team performance. It is also likely that a military academy environment is not a realistic model of a working military organization, and that the squadron goals, for example, are not necessarily shared group goals. Nonetheless, future research will hopefully provide more definitive conclusions about the prospects for enhancing trust through team building interventions.

An experiment by Dirks (1999) used a tower building task to study the relationship between trust and both group process and performance. Dirk's primary argument is that trust impacts indirectly rather than directly on group process and performance. Moreover, he argues that, despite the widespread assumption that trust impacts directly on group process and performance, trust actually impacts indirectly, by influencing whether group members channel their energies into group efforts or to individual efforts. An experiment was conducted to test these hypotheses.

Forty-two work groups with 3 members were each given the objective of building towers that contained as many blocks as possible either as a group and/or as individuals. Trust was manipulated to be either high or low within the work teams. In the high-trust condition, participants received information that their partners were reliable and that they were not likely to take advantage of them. In the low-trust condition, participants were told that their group partners were unreliable and were likely to take advantage of them.

> *Team performance indicators* included measures of both *effectiveness* (defined as number of blocks in the tower and number of times blocks fell) and *efficiency* (calculated as the achievement of the group relative to what might be expected based on prior individual block-building trials) on the block building task
>
> *Team process indicators* focused on how the teams accomplished their task, and included observed behavioural ratings of coordination and direction of effort as well as other measures. These variables were measured using the behavioural ratings of two judges.

Task motivation measured the extent to which participants reported that they "attempted to maximize personal gains" while working with the group. This measure was based on a self-report survey.

Results were as follows:

Trust and Team Performance Indicators – Regression analyses showed that trust on its own did not predict overall team performance. High trust teams did not perform any better on the task than did low trust teams in terms of either efficiency or effectiveness. Trust did interact with task motivation, however, to predict team performance on the block building task. More specifically, when task motivation and trust were high, groups showed more efficient performance. This was not the case when task motivation and trust were low. Teams with high trust and high task motivation, then, were able to accomplish more than what their individual levels of achievement had predicted, and were able to do so with fewer problems.

Trust and Team Process Indicators – Analyses again showed that high and low trust teams showed no significant differences in team processes. Again, however, trust and task motivation did interact to produce differences on the measures of coordination and direction of effort. More specifically, high trust teams with high task motivation worked as a single unit when trust and task motivation were high, but worked without such coordination when trust and task motivation were low. Similar patterns were evidenced for the direction of effort variable, such that groups with high task motivation directed their efforts toward group goals in the high trust, high motivation condition, but toward individual goals in the low trust, low motivation condition. There were no other effects on other group process indicators. These results suggest that although trust does not directly affect the processes that groups use to accomplish tasks directly, it does work together with group members' task motivation to influence both coordination and direction of effort within teams.

Dirks argues that trust does not impact directly on group performance and process, but that it moderates the relationship between task motivation and group performance and process by impacting on how group members channel their energies into group rather than individual efforts. Trust does not drive behaviour and performance directly (e.g., by increasing cooperation and performance), but indirectly by channeling how people within a team direct their energy. When trust is high within a team, team members can work toward a group task with certainty, and all their efforts can go toward achieving the group goal. When trust is low, however, team members must work to "protect their backside" (Dirks, 1999) and this need to focus on personal goals (e.g., self-protective goals) may diminish motivation to work on the group task.

Although this study represents an important start in understanding the relationship between trust and group performance, it is not clear how well these findings would generalize to real-life trust situations, as building block towers is a rather artificial situation. It seems important to explore the relationship between trust and team performance in more true to life experimental settings. Moreover, it is also difficult to understand how cooperation/coordination and direction of effort were operationalized in this experiment, as this information was not given. Nonetheless, this study does make a potentially important contribution to the literature by calling into question the commonly accepted but poorly validated assumption that trust influences group performance directly, and the challenge that Dirks' work presents is one an important issue for trust researchers to address.

Additional empirical evidence also suggests that trust impacts indirectly rather than directly on team performance. A study by Porter and Lilly (1996) develops and tests a model exploring the influence of conflict, trust and task commitment on team performance. This model specifies the relationship between conflict, trust, task commitment and team performance as follows:

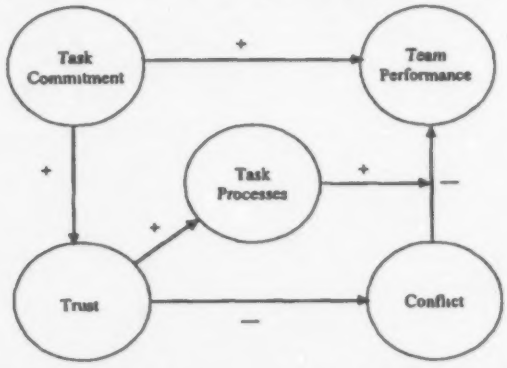


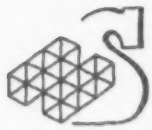
Figure 9.1 – Porter and Lilly (1996) Model

Project teams (defined as small groups working outside traditional hierarchical lines of authority) comprised of 5 – 6 undergraduate business students working on a course project participated in this study. The project involved working as a team to develop a written proposal about how best to bring an innovative new product to market. These proposals were compared against an "optimal solution" for the case study, providing an objective measure of team's success in performing the task. Team members were also asked to complete a survey before receiving feedback on their project, measuring the following:

- *Trust* was measured using a 4 item scale, including items such as "If I were absent from a group meeting, I would be confident in the other group members' ability to make decisions without my involvement".
- *Task process measures* included identification of task objectives, prioritizing work, and developing workable plans
- *Conflict* was measured using a self-report scale
- *Task Commitment*, defined as "*the group's determination to perform to a degree that is superior to acceptable standards of performance*" was measured using self-report scales
- *Team Performance* was measured by the grade assigned by raters to each group's written paper

This study was designed to test the model depicted in Figure 1. Path analysis showed that, as a whole, the data fit the model well. The only non-significant path was between task commitment and team performance.

Importantly, task commitment within a team was positively related to trust. Porter and Lilly argue that when group members perceive others are highly motivated to excel, their trust in the group increases. Secondly, trust within a team was positively correlated with the quality of group task processes. Teams with high trust showed a heightened ability to identify task objectives, to prioritize their work and to develop work plans.



Trust was negatively related to conflict. Porter and Lilly suggest that trust may have reduced conflict in two ways. First, high trust within groups may diminish group member's desire to challenge the ideas of fellow group members. High levels of trust within teams may also increase the ability to exert normative pressure to bring dissenting group members into line with the will of the group.

Most importantly, trust did influence performance, but did so indirectly, as it impacted on teams' ability to handle conflict. Porter and Lilly argue that high levels of trust may enable a team to reach consensus on issues of task process and improve the development of work plans and ability to prioritize. These task processes, in turn, increase the quality of group performance. This is an important finding as good task processes moderate the relationship between conflict and performance.

Porter and Lilly's work gives trust an important role in team performance. Trust affects performance indirectly, by affecting both conflict and task processes. By increasing a group's level of trust, one can reduce conflict in the group, thus leading to better group performance. Increased trust also leads to more effective task processes, and when task processes are more effective, the effects of conflict are less negative. So, trust reduces the overall level of conflict, and also mitigates the negative impact of what conflict there is by making task processes more effective. Both of these functions of trust lead to better group performance and achievement. Lastly, this work shows that one way to improve trust within a project team is to build commitment to the task among group members.

In an infantry team context, this work suggests that trust is likely to play an important role in reducing conflict and improving the ability of teams to plan their tasks. Both of these effects of trust improve performance. Building trust is important because of its effects on other processes that are critical to maximal team performance. It is also important to note, however, that the Dirks and Porter and Lilly studies apply only to domains where team members are on relatively equal footing and are without a formal leader. The impact of trust in other military situations is not addressed in the available research.

9.7 Effects of Trust in Military Settings

To this point, we have reviewed the effects of trust from the empirical trust literature. There is also important agreement within the military literature suggesting that trust plays a major role in the ability to complete missions and to fulfill one's duties as a soldier.

Cox (1996), for example, argues that trust played a critical role in the high performance and achievement of the most highly decorated combat unit in U.S. history. The 442nd regiment was composed of Japanese/American soldiers who fought during World War II. Despite facing obstacles both on the battlefield and at home due to prejudice against Japanese people, the Caucasian leaders of this regiment were able to create a command climate that promoted cohesion, morale and trust. Cox argues that this climate was due in no small part to the fact that the 442nd soldiers "*believed that their leaders would do what was right for them and for the mission.*" Trust, in combination with morale and cohesion is argued to have played an important role in combat success.

Another historical study of two military units also speaks to the importance of leadership in creating trust, as well as to the role of trust in team performance (Ivy, 1995). The 761st Tank Battalion and the 92nd Division were both combat units in World War II. Both units had similar compositions,

(with Black soldiers, some Black officers and all higher level White officers) and similar training. Despite these similarities, however, the two units had very different combat records. The 761st had a highly prestigious combat record, as evidenced by earning the Presidential Unit Citation, the highest combat award given to units in the U.S. Army. The 92nd Division had a distinctly unsuccessful combat record, having failed to successfully execute many of its missions. Ivy attributes these differences in performance outcomes to differences in leadership styles which (among other things) promoted an environment of interpersonal trust and mutual respect in the successful 761st Battalion, but a climate of mistrust and suspicion in the 92nd unit.

Despite the challenges facing the 761st unit (e.g., prejudice toward Black people in the 60's), unit leaders were able to maintain high standards of competency for both themselves and their soldiers, and were able to provide the vision necessary to cultivate mutual trust and respect within their units. One leader, Colonel Bates, demonstrated trust and respect for all his soldiers, treated them as equals, and chose to live on post to be near his soldiers. Another white officer refused to accept officer club privileges, as this club excluded Black officers. As a whole, Ivy argues that the leadership shown in conveying trust and respect for the soldiers increased trust in leaders and heightened their motivation to perform. Ivy argued that the increased motivation of the 761st unit to serve their leaders and their country contributed to the achievement of the 761st Tank Battalion.

The 92nd Division, on the other hand, was marred by mistrust from the unit's inception. The division commander, General Almond, was decidedly unhappy to command Black soldiers and was generally seen by the Black soldiers as a racist. Ivy argues that the complete lack of trust within the unit was an important contributor to the failure of the 92nd Division. More specifically, the motivation of soldiers to perform for their leaders was seen to play a key role in performance. Ivy states that "*the lack of motivation on the part of the Black soldiers and leaders of the 92nd was directly the result of mistrust of their superiors*".

Although Ivy focuses on the role of interpersonal skills in building or denigrating unit trust, the models of person-based trust development suggest that trust was likely also eroded by the fact that the competency generally was less in the 92nd Division than in the 761st Battalion. It is also very likely that trust was impacted by information about competencies (or lack thereof) within both units. In addition to trust, conceptual skills, vision and organizing the tasks of the mission were also seen as important factors that impacted on the combat performance outcomes of both units. These historical analyses provide compelling accounts of the important role of trust in the performance of military teams.

9.8 Research Implications

Based on the review in this chapter, we expect that trust within infantry teams will have the following effects, as summarized below:

Table 9.1 – Effects of Trust Summary

Defensive Monitoring	Trust lessens the need for defensively monitoring others in other to protect one's interests	High trust teams will show less defensive monitoring of teammates
Need for Controls	Trust lessens the need for hierarchical controls	Established trust with upper levels of command will reduce the need for controls
Cooperation	Trust promotes cooperation by increasing predictability and expectations of reciprocity	High trust teams are more likely to cooperate High trust team members will show more ability to predict
Communication	Trust promotes sharing of information	High trust teams are likely to share more information High trust teams are more effective in distributing information
Conflict	Trust decreases conflict	High trust teams will show lower levels of conflict overall. When conflict does occur, high trust teams are more likely to interpret this conflict as task conflict, and less likely to interpret it as relationship centred conflict
Group Process and Performance	In general, trust improves the performance of workgroups. There is disagreement about whether this effect is direct or indirect.	High trust teams will show better group processes and better group performance

It is important to note that in many ways, the effects of trust on process and performance are yet to be fully elaborated and understood within the domain of scientific trust research. This is partly due to the relatively short amount of time that trust has been studied empirically, but also due to the way that trust has been researched. The available trust literature suggests several considerations for understanding the effects of trust in infantry teams:

- The existing research has been mainly conducted in artificial settings. It is unclear how well these findings generalize to less artificial settings. In order to understand the impact of trust adequately, it will be important to study it in more realistic settings.
- Few of the available studies show how trust affects preexisting teams rather than groups of unfamiliar people assembled to work together. As important as it is to begin to understand trust, it will be impossible to truly understand how trust affects team process and performance until real teams are used in trust research.

- The reviewed research suggests that task motivation may play an important role in trust-relevant situations. Task motivation is likely to prove an important control aspect of any study.
- A key aspect of this part of the research will be understanding whether person-based trust and category-based trust have the same effects on trust-relevant behaviour. Are both forms of trust likely to provide the same basis for taking risks? For example, are people who have actually observed another person's competence more likely to take the risk of trusting that person than those who have conferred trust preemptively (e.g., as a product of common group membership)
- Person-based trust theorists (e.g., Mayer et al., 1995) argue that it is important to consider the role of both the trustor and the trustee in understanding how trust develops. This important distinction could also be explored in the context of the current research, to explore the impact on both group performance and group process of teammates knowing that they are trusted. This issue has yet to be addressed in the available research, but is of particular importance in small teams. A similar line of research exists within social psychology, often showing the performance of stereotyped people to diminish in accordance with negative stereotypes (see Kunda, 1999). In small teams, team members who know that they are not trusted may show similar effects.

Chapter 10 - Protecting Trust

How is trust within infantry teams likely to be maintained over the course of time? As important as it is to build trust within small teams, sustaining trust between team members over extended missions and operations is critical as well. This section explores the available research relevant to protecting trust, and applies these ideas to the context of small teams.

10.1 Maintaining Trust

Even after its emergence, trust is a dynamic process (Holmes and Rempel, 1989; Rousseau et al., 1998). A true understanding of trust can only be achieved by understanding it over the course of time, how it develops and is maintained, and how it erodes or disintegrates. Unfortunately, empirical studies exploring the maintenance and erosion of trust appear to be very limited, but these issues have received some theoretical exploration.

Both models describing person-based trust (Rempel, Holmes, and Zanna, 1985; Lewicki and Bunker, 1996) argue that trust develops as relationships develop, and that different stages of trust are established as relationships progress. Trust evolves as it progresses through different stages. For Lewicki and Bunker (1996), this progression moves from calculus-based trust or trust based on perceived costs and benefits, to knowledge-based trust a deeper form of trust based on information about predictability and positive intentions. Fully developed relationships can move toward identification-based trust, in which trust partners understand and accept each other completely. For Rempel, Holmes and Zanna (1985), the progression of trust moves from judgements of predictability and dependability to faith, whereby uncertainty about a person's behaviours and motivations is replaced with confident security and high levels of trust. In both of these models, then, highly developed relationships are associated with high levels of trust.

In order to understand how trust is likely to be maintained within infantry teams, it is important to explore relationships within infantry teams and to consider the nature of established trust in infantry teams. The level of trust that develops within infantry teams, of course, is an empirical question. In general, however, combining the depictions of trust in the available military literature with an understanding of the factors affecting trust from the scientific perspective, suggests that trust within infantry teams has the potential to be a relatively more developed form of trust. There are several reasons for this assertion. Lewicki and Bunker (1996) argue that the extent to which trust develops in a relationship is a product of the purpose and the scope of the relationship. Some relationships require only arms length transactions, whereas some require a high level of interdependence and extended contact. Relationships that require more interdependence are more likely to have more highly developed trust. Within infantry teams, team members have a high level of contact and involvement, and a high need for interdependence, both to complete their duties and presumably to deal with the risk and uncertainty of their situation. One would expect that these relationships be deeper and would be more intricately based on trust. This assertion, certainly, is supported by the available military literature, which portray such relationships as extremely close and involving the sharing of intimate life details (Cox, 1996). In the relationships that infantry team members have with other section members outside of the infantry team, one would expect that fewer of these relationships would progress beyond the early stages of trust, as the need for trust in these relationships and the opportunity to develop trust may be less. These arguments, of course, are

speculative and suggest only that infantry team relationships have the potential to establish higher levels of trust, not that they actually will. It is noted that many other factors within the infantry team environment are likely to affect trust as well. As a whole, however, trust has at least the potential to be more highly developed within infantry teams.

Once trust is established within relationships, the extent to which trust is maintained is dependent on how well the expectations on which trust is based are consistently met (Rempel, Holmes and Zanna, 1985). Trust is likely to be maintained by trust parties consistently displaying predictable behaviour and showing evidence of continued motivation to act in their trust partner's best interests. If a trusting relationship is based on seeing one's trust partner as predictable and genuinely concerned, behaviours that provide evidence of the validity of this expectation will promote the maintenance of trust. This suggests that the extent to which trust is maintained within an infantry team will also be a product of consistently confirmed expectations. If a trusting relationship develops out of respect for each other's competence with handling weapons, for example, continued evidence of competence and meeting the expectations associated with that competence will maintain trust. Similarly, acting in concert with shared goals or values will also work to maintain the trust established within an existing relationship. Maintaining trust within infantry teams is likely to require the same consistency and predictability integral to developing trust.

Established trust is also argued to have self-sustaining, or even self-enhancing qualities. A model by Mayer et al. (1995), for example, argues that when trusting behaviour is successful (i.e. when a trusted person shows the expected positive behaviour), these positive outcomes lead to updates in future expectations. Once updated, the new expectations then give rise to more positive expectations of trustworthiness in the future, and make people more likely to trust. Put another way, the outcomes of successful trusting behaviour lead to even more trust by directly influencing the likelihood of trusting behaviour in the future (Mayer et al., 1995). Trust theorists have also described a similar process, whereby positive outcomes of trusting others leads to "upward spirals" (Porter, 1997) or "reciprocal reassurance spirals" (Holmes and Rempel, 1989). In short, there is considerable consensus that trusting and supportive behaviour both maintains and actively creates more trust in both work and personal relationships. Trust is, to some extent, self-maintaining.

Several other features of trusting relationships also promote the maintenance of trust. There is evidence from close relationship research that people within dyadic trusting relationships calculate the costs and benefits of relationships over a longer period of time (Holmes and Rempel, 1989). Momentary inequities, which might otherwise be grounds for concerns about equality, are seen as part of the natural course of relationships. Trust helps to eliminate the need for immediate reciprocity within a relationship. Moreover, as people within established relationships have a wider sample of behaviour on which to draw in making judgements of trust, they are less likely to see minor variations of trust-related behaviour as problematic (Holmes and Rempel, 1989). Any information or evidence that suggests that one's trust partner is being untrustworthy is diluted by a wider body of information that suggests that they are inherently predictable and positively motivated to behave favourably. As trust helps to eliminate concerns about reciprocity and smoothes out the potentially negative impact of variations in the behaviours of trusted people, it also helps to sustain trust within relationships.

If trust can be developed in infantry teams, these features of trust will likely work in the service of maintaining this trust. Proven competence will promote judgements of even higher competence and more trust will be conferred. Similarly, team members who trust each may also be less focused on

maintaining short-term equality in their relationships, and may be better able to overlook minor variations in their trusted teammates' behaviour. Overall, this analysis has important implications for the maintenance of trust in infantry teams, as it suggests that many of the same factors that promote the development of trust also help to sustain trust over the longer term. This fact is both daunting and encouraging. On one hand, creating the factors that will develop trust is no small feat. On the other hand, the very process of developing trust also provides important information and practice in how to maintain trust over the longer term.

10.2 The Erosion of Trust

It is also clear from the existing literature that there are many factors that work against the maintenance of trust. Several theorists, in fact, have argued that trust is fragile, and that although trust and trusting behaviour require considerable time to build, trust can quickly disintegrate (Meyerson et al., 1996, Kramer, 1999). As Lewicki and Bunker (1995) argue, "*...trust is easier to destroy than to build.*" There is clear theoretical agreement that trust requires conscious and consistent attention and input in order to be fully maintained, and the existing literature focuses on trust violations as the major determinant of whether trust is sustained.

At the simplest level, trust violations occur when expectations about trusted others are not met or reciprocated (Jones and George, 1998). Trust violations can take many forms. Such violations may include, for example, acting in opposition to one's stated values, the breaking of contracts, lying etc. Trust violations can occur at a single point in time, or can occur as a gradual and progressive set of trust violations that accumulate over the course of time (Lewicki and Bunker, 1996). Either form of violation can do serious damage to existing trust. Trust has been depicted as an "equilibrium", and trust violations pose a threat to this equilibrium (Lewicki and Bunker, 1996). Reestablishing the balance of trust requires a reassessment of the assumptions on which trust is based. In keeping with the dual structure of trust, this reassessment occurs at the both the cognitive level (e.g., trying to understand the violation) and at an emotional level (e.g., dealing with the anger and/or the hurt).

Moreover, trust violations are not just isolated events that impact on a person, but on the relationship as a whole (Lewicki and Bunker, 1996). Moreover, every relationship has the potential to face trust violations. In order to maintain full relationships, it is critical to address trust violations even in work settings and to work through the violation within the relationship (Lewicki and Bunker, 1996). Failure to do this does not necessarily preclude continued interaction, but may lead to the essence of the relationship being destroyed, leaving only "shell" relationships.

One of the most important predictors of whether trust will be maintained within a relationship is how partners handle perceived violations of trust (Holmes and Rempel, 1989; Lewicki and Bunker, 1996). Several factors are posited to play a role in determining the outcome of a trust violation (Lewicki and Bunker, 1995, 1996). First, the violator's response to the victim plays an important role. If the violator, for example, engages in restorative behaviour quickly, this will increase the likelihood that the victim will re-engage the relationship. By the same token, if the violator is unresponsive to the needs of the victim, this will increase the probability of a more negative outcome.

Secondly, the form and intensity of the trust violation will influence the outcome of a trust violation (Lewicki and Bunker, 1995, 1996; Jones and George, 1998). Some violations of trust are more dangerous to relationships than others. Finding out that a trusted employee has been embezzling money from one's company for years, for example, will be far more influential on judgements of

trust than finding that a trust partner has lied to us to protect our feelings. The form of the trust violation is also likely to impact on the outcome of the violation. Trust violations are argued to have a cognitive and an affective basis. Relationships also vary in the extent to which they are based on affective or cognitive dimensions of trust (e.g., McAllister, 1995). An affective trust violation is likely to impact more adversely on a relationship with a wider affective basis than on a relationship with a more cognitive basis (Lewicki and Bunker, 1996). The degree of match between the challenge presented in a trust violation and the most influential basis of trust within a relationship may determine the damage caused by a trust violation.

Lastly, the depth of trust that is present in a relationship when a trust violation occurs will influence the impact of the violation. Relationships that have formed a deeper basis of trust will be more resilient to violations of trust than will relationships that have been formed on the basis of more instrumental or exchange-based concerns. (Lewicki and Bunker, 1996; Jones and George, 1998). This is true partly because of the investment of time and energy needed to develop high trust relationships. In general, people with higher investments in their trust relationships may be more motivated to maintain them, will have a longer history of reliable behaviour to fall back on (Lewicki and Bunker, 1996), and also will have more emotional bonds to the relationship (Holmes and Rempel, 1989). Relationships with higher levels of trust are also likely to be more resilient because trust affects the attributions made about trust partners. Once trust is in place in a relationship, active monitoring of trust partners is no longer essential in order to protect one's interests. In fact, Holmes and Rempel (1989) argue that fully developed trust relationships are characterized by the absence of active appraisal processes. In a truly trusting relationship, discerning the motives of trust partners is no longer necessary. Questions about what a partner is likely to do, or what a partner's motives are likely to be in a given situation have already been answered. As Holmes and Rempel (1989) argue, even behavioural transgressions that have not yet occurred have already been discounted. When a trusted person exhibits untrustworthy behaviour, this inconsistent behaviour may be de-emphasized or dismissed. Holmes and Rempel (1989) argue that this information is not necessarily summarily dismissed, but that the attributions made about trust violations are constrained to explanations that are less threatening to the relationship. One might, for example, make more situational rather than dispositional attributions for a trusted partner's behaviour, and this helps to maintain the view that one's trust partner is trustworthy, even in the face of violations. In relationships with highly developed trust, then, trust violations are likely to be less problematic.

Paradoxically, there is also theoretical agreement that the strongest and most trusting relationships are vulnerable to core violations of trust. Only these relationships are based on ultimate knowledge and vulnerability that come into play when trust is placed fully in another person's hands (Lewicki and Bunker, 1995, 1996; Holmes and Rempel, 1989). Moreover, such relationships are also based on sharing core values and beliefs (Jones and George, 1998). If the trust violation provides evidence of conflicting values, the base on which the relationship is built may crumble. Although the depth of the relationship helps to offset some violations of trust, it also makes one more vulnerable to serious violations of trust. It is also clear, however, that even the most established relationships may not be able to deal with more serious kinds of violations. If a partner's behaviour can only meaningfully be understood as a product of dishonourable intentions (rather than situational constraints) trust may disintegrate.

Discrete incidents of trust violations, however, are not the only challenge to the maintenance of trust. Trust may also erode, not through large violations, but through the gradual disconfirmation of expectations. Several trust theorists have noted that the accumulation of even small violations of

trust may gradually and insidiously erode the basis of trust in a relationship, or even within an organization (Kramer, 1999, Jones and George, 1998). This might occur if trust violations are not addressed, or are not resolved successfully. Trust theorists note that even a small violation of trust may trigger more monitoring and more elaborate processing of information, in order to ensure that trust partners will be reliable (Holmes and Rempel, 1989). By giving trust partners less benefit of the doubt, violations that may otherwise be discounted may be emphasized and attributed to more sinister motives. There is also strong emphasis in the literature that these processes can become cyclical. Higher monitoring and less generous attributions may create a self-fulfilling prophecy in several ways. First, with increased monitoring of trust partners, more violations are likely to be seen, as many potential trust violations may sometimes go unnoticed within relationships. Secondly, the interpretation of behaviour may be less generous, and more critical. Lastly, failure to give the benefit of the doubt to trust partners may lessen their motivation to be predictable and positively concerned, and may fulfill one's expectations of untrustworthiness. As such, low trust can create the very behaviour in even an unwitting partner that one sets out to protect against (Holmes, 1991). The dangers of negative trust cycles are also prominent in work describing low trust work environments. Ryan and Oestreich (1991), for example, describe how "cycles of mistrust" can lead to the erosion of trust within a supervisor and employee relationship. When a supervisor has low trust in employees, and negative stereotypes about employees, this may give rise to a higher monitoring of the employee in order to ensure adequate performance. The employee, resentful of the increased monitoring of the supervisor, may display even more untrustworthy behaviour that validates the low trust conferred by the supervisor. As a whole, low trust can lead to behaviours that cause also cause trust to spiral downwards (Jones and George, 1998). Relationships with trust can suffer both single incidents of violations and the progressive accumulation of violations.

Trust violations lead mainly to three outcomes (Lewicki and Bunker, 1996). First, serious violations can lead to immediate rupture of a relationship, when there is no way or no will to repair the relationship. Secondly, violations can initiate a process of rehabilitation of a trust relationship, when the parties actively work to reestablish trust. Lastly, relationships can simply be resumed without dealing with violations and trust can be restored (Lewicki and Bunker, 1996).

Repairing a trust violation requires action on the part of both the victim and the violator. In order for a trust repair process to be started, Lewicki and Bunker (1996) argue that both partners must be willing to invest the time and energy in this process, must believe that the future benefits are worth the investment, and must believe that these benefits cannot be achieved through other means. Once the repair process has started, each party in the relationship has a unique role. The violator must recognize and admit that a trust violation has occurred, and be able to identify the nature of the violation. The violator also needs to admit that the act was destructive and to take responsibility for the violation. The victim must work through similar steps. Either the victim or the violator must then initiate a resolution. This may take the form of an apology, forgiveness or atonement. The outcome of this "negotiation" determines the status of the relationship after the violation.

It is important to note that the mere presence of trust violations, although a threat to trust, will not necessarily result in a decline in trust, or to the dissolution of trusting relationships. Rather, trust theorists argue that dealing successfully with trust violations may actually benefit relationships, by providing evidence of even greater levels of commitment to the relationship and willingness to fight for the relationship (Holmes and Rempel, 1989). This analysis suggests that trust can be protected by dealing effectively with trust violations. With a commitment from both parties to invest the time

and energy needed to restore the relationship and with open and honest communication, trust violations need not be fatal to relationships.

Within infantry teams, then, the extent to which trust violations impact on relationships will likely be affected by the depth of the established trust, and by the seriousness and form of the violation. As noted earlier, the depth of trust that is established in infantry teams is an empirical question. There are some reasons to believe, however, that the trust within infantry teams may have the potential to develop to higher levels than in many other work relationships. This analysis suggests that such relationships will be more likely to be affected by more serious violations of trust rather than by minor violations of trust. This has both positive and negative implications. On one hand, it may take more to violate trust in a harmful way to begin with because of the increased positive attributions made about trusted others. On the other hand, a trust violation may be more dangerous and hurtful in the context of a close relationship found in small military teams. In a highly interdependent environment, team members may have trouble getting the time that they may sometimes need to reassess the relationship without being in regular contact with the violator. Moreover, if the violation cannot be successfully dealt with, it may be necessary for team members to request a transfer in order to resolve the conflict. This option, although it may resolve the conflict in the long term is not likely to be immediately available. High levels of interdependence may pose a serious challenge to maintaining trust within infantry teams.

It is possible that infantry team environments will be even more subject to violations of trust than most other kinds of work environments. Predicting how others will behave in a 9 to 5 business setting may be somewhat simpler than predicting how a soldier facing gunfire or horrible atrocities is likely to behave. The potential for such violations of trust seem higher in military settings because of the extremes of stress experienced, and these violations have the potential to hinder the maintenance of trust. The degree of contact within infantry teams also poses a potential challenge as the high levels of contact may enable more natural exposure to trust violations that, in other relationships, would go unseen.

It is also important to consider other unique challenges to maintaining trust that infantry teams face. Infantry teams are expected to perform military missions over extended periods of time. The length of missions, certainly, may be a positive contributor to the creation of trust, as long missions provide the opportunity for prolonged interaction. Over the course of prolonged missions, turnover is likely to present a challenge to maintaining trust. The energy needed to establish trust in new teammates may diminish the energy available to maintain trust within established relationships. Moreover, establishing trust in other teammates, only to have them leave the team, may have a serious influence on the motivation to maintain trust within existing relationships. If the relationships that one builds never last, there may be little reason to keep investing energy even in other positive relationships.

Prolonged military operations and the physical and psychological hardships that they present may also challenge the maintenance of trust. A Canadian soldier's diary (Prouse, 2000), for example, portrays a mission to Somalia as sometimes lacking adequate food, lodging, and even proper hygiene facilities. At the most simplistic level, it could be argued that, as a higher order need, trust may be more difficult to sustain when lower, more basic needs are not met (Maslow, 1969). In addition, if infantry team members are geographically distributed for prolonged periods, for example, it may also be more difficult to maintain trusting relationships, and it may be more difficult to share the values and ideas that sustain trust in the longer term.

Similarly, the psychological strains of being in theatre may also diminish infantry team members' ability to sustain trusting relationships. To the extent that trust requires consistent and deliberate attention, such resources may be more difficult to cultivate over the course of prolonged missions. High accountability and high levels of responsibility during military operations make it critical for soldiers to focus on the task at hand. In these situations, soldiers may tend to ignore the social environment and to focus more on the practical aspects of duties. This lack of attentiveness to other teammates may make it more difficult to maintain trust because the time and attention is not available to interact. Moreover, this lack of focus on the social domain may also make the dimensions on which trust is built less salient. It may be more difficult to continue to see one's partner as competent, for example, without observing and attending to this information.

Pressures encountered during the course of a mission may also impact not just on the ability to maintain trusting relationships, but on the motivation to do so. The harsh living conditions faced by infantry soldiers during operations may lessen the motivation to sustain trust in relationships with others. Motivational problems are likely to increase as distance from family and friends, for example, take their toll. Maintaining trust takes time, energy, and motivation, all of which are likely to diminish over the course of extended missions. It is also important to point out that the lack of time, energy and motivation may also impact on trust even more insidiously. Over long missions, the ability to confer trust may be limited by the failure of tired soldiers to meet the standards on which trust is predicated. Soldiers may become less competent, for example, as they experience more fatigue and less motivation to extend themselves, and judgements of trust based on competence may no longer be accurate.

All of these challenges are also likely to lessen the ability of infantry team members to adequately deal with violations of trust. The ability to move beyond a trust violation is predicated on the ability to communicate about it and to come to understand each other's perspective. It seems likely that infantry team members will have a harder time doing this due to the demands of the environment within which they function. Trust violations may be dealt with less successfully, or may even be less likely to be dealt with at all. Moreover, small forms of trust violations may take on even more importance, and this seems particularly likely to happen in times of stress. Over long missions, the lack of time, energy, and both physical and psychological comfort, are imposing challenges to trust that infantry teams must face.

On the other hand, although the infantry team setting presents many challenges to the maintenance of trust, there are also some reasons to be optimistic about the prospects of maintaining trust in infantry teams. At the simplest level, infantry team members may be more committed to maintain trust than are people in other relationships. Within a military operation, trust in other teammates may well be integral to one's survival. If trust can be established, team members may work hard to maintain it. Trust violations should be seen as inevitable, and training provided to help infantry team members to work through trust violations. Moreover, although extended operations may present challenges to trust, they may also promote trust by providing concrete and observable evidence of trustworthy behaviour. Seeing one's teammate run into the line of fire in order to save a person in danger, for example, provides clear evidence that one's attributions of trustworthiness are valid. Judgements of trust are tested in ways that few relationships have the opportunity to explore, and this alone may promote the maintenance of trust.

It is also important to note that infantry teams have the potential to exert considerable influence in the maintenance of trust. Teams create their own cultures and their own sets of expectations and norms in general, and about trust specifically (Porter, 1997). To the extent that a team has created

positive norms around trust, trust within the team may be maintained because team members are invested in adhering to the existing team norms. These norms may promote the maintenance of trust directly, by creating expectations of loyalty and tolerance toward trusted team members for the good of the group, even if team members violate each other's trust. Similarly, team norms can also influence not just team members' motivation to engage in trusting behaviour, but the actual interpretation of behaviour (Porter, 1997). Within a trusting team culture, violations of trust may be interpreted with more latitude and generosity.

In this sense, the team environment has the potential to either promote or hinder the maintenance of trust. If the team norms continue to promote trust and to anticipate trust in the infantry team member relationships, then trust is more likely to be maintained. Even within a team environment, then, trust can be self-perpetuating. It is also possible that a strong team environment could help to buffer these stresses and increase the motivation to sustain trust. On the other hand, the opposite is also true. If a team is particularly negative toward trust, a team member otherwise inclined to trust others may not trust, in order to stand in line with the standards created within the team. In this sense, protecting trust is perhaps best accomplished by promoting a team environment of trust that is imbued with common values and goals. This kind of environment provides the best hope of maintaining trust over the course of difficult missions, and despite the inevitable violations of trust that will occur in any highly interdependent situation.

10.3 Creating and Sustaining Trust in Small Infantry Teams

Small infantry teams pose unique challenges for both the development and the maintenance of trust. The current literature, however, provides some direction about how trust can best be promulgated and protected over the longer term. Military training and philosophy already addresses many of these issues.

Build trust early in the "life" of small teams. Building trust as a part of basic training is critical. Once teams enter military operations, it is clear that the normal trust development processes (e.g., communication etc.) are likely to be hindered by the environments within which teams function. One way to address these negative effects may be to build trust within teams before entering operations. Trust will still be challenged, but there is at least hope that some trust can be sustained if it is established to the highest degree possible in less chaotic settings.

Mitigate the negative effects of turnover. Perhaps the biggest challenge to trust within small infantry teams and within the military system generally is turnover. Trust develops over time, and as the result of common experiences. Category-based trust, however, is also likely to be negatively impacted by turnover, as turnover may hinder both the development and the perpetuation of a common vision and identity. It is, of course, impossible to eliminate turnover within military settings, but efforts to decrease turnover may assist trust within small teams.

Further, although it may be impossible to prevent trust that is established within small teams from being regularly broken, addressing this issue directly may also be an important way to promote trust over the longer term. It may be important to help members of small teams work through the inevitable losses of trust they face. At a very simplistic level, even communication about how these losses feel may be a start. Although only one person's perspective, a Canadian soldier's diary (Prouse, 2000), is a fascinating portrayal of what soldiers do not say in dealing with the loss of trusted friends. Such losses are described matter-of-factly and with little detail.

Another way to mitigate the negative impact of turnover on trust is to ensure that new team members have the best possible chance to both receive and give trust. In this sense, trust can be facilitated by ensuring that new team members are introduced to the team, and by enabling them to display their competencies quickly. Information about their training and education may also help their teammates to make immediate inferences about their trustworthiness. At the same time, it is also important that new members of small teams are provided with information about established team members' competencies and the team's values and norms.

Promote competence at all levels. In the context of small infantry teams, competence is likely to be the most critical influence on willingness to confer trust. Ensuring competence both within teams, and within the military structure, will promote trust. One of the best ways to ensure competence is through ongoing training and education. Such training could, for example, allow teams to work together to build skills that the team or a team member is having trouble mastering, as a way to maintain trust within the team.

Evaluate the ongoing status of trust within small teams and address problems. In order to promote trust within a team or within the military system as a whole, it is critical to have an ongoing monitor on trust in these contexts. This would enable for issues of deteriorating trust to be addressed before they spiral out of control. Within small teams, for example, diminishing trust could signal the need to have some time in a less chaotic setting with fewer pressures.

Promote trust through training and education. Ensuring that soldiers receive information about military procedures, weapons training etc. are important parts of basic training. We argue that building an understanding of trust at the early stages of military training is also critical. Many of the current training procedures and strategies, certainly, may already help to build trust. These may include, for example, team building exercises, which provide information about the competence of teammates, as well as promoting a common identity. Interdependence appears to be highly emphasized in current training procedures, as team achievement is only possible if every individual is able to perform a given task. Exercises such as night patrols, obstacle crossing and assault courses are good examples of existing military exercises that work to build team trust.

Build strong teams based on trust. Military training should provide education and training about trust at a team level. This training should provide general information about trust and how to promote trust, but should provide an opportunity for team members to consider the attributes that weigh most heavily on their own judgements of the trustworthiness of other team members. This is not only an opportunity for self-reflection about trust, but also a chance for team members to learn how best to garner the trust of their teammates. This training should also include information about the benefits of trust, and about the signs to watch for when trust is low (e.g., defensive monitoring).

The opportunity to rehearse the kind of tasks with which infantry teams will be confronted when they enter operations is also critical. As trust is predicated on predictability, having the opportunity to form expectations through repeated trials is an excellent way to build trust. Other exercises that would help in trust development and maintenance would include exercises that allow rehearsal of the behaviours and motives of other teammates. These forms of rehearsal would enable practice on the part of prospective trustees, and more importantly, feedback and discussion about how well their expectations actually predict behaviour of other team members in an environment that encourages open communication. The opportunity for the trustee to discuss their behaviour (e.g., why their behaviours were different from what was expected) would also be an important benefit of rehearsing prediction processes and building trust. As a whole, the most important issue is to create a group

environment in which skill deficits or shortcomings can be admitted, and worked on in a trusting environment.

Mitigate the negative effects of diversity. As military teams function in increasingly diverse environments, and as stereotypes often carry information that is extremely detrimental to trust, knowledge of how to mitigate the negative impacts of cultural, racial, and many other forms of social stereotyping seems critical for developing and maintaining trust, both within teams and service-wide. This may be facilitated by promoting individuals' knowledge about their stereotypes and biases (Griggs and Louw, 1995). Countering diversity may also be facilitated by promoting a common vision and purpose which provide a strong basis of similarity and common group membership even amongst diverse people.

Promote clear and well-defined roles. Ensuring competent performance, however, is not enough to promote trust. For some tasks, it may be very difficult to judge a person's competence, especially if the task is unfamiliar. This may make it more difficult to gauge the competence of people who perform such tasks. In order to enable accurate judgements of trust, it is important to provide clear and well-defined roles that provide clear standards by which to judge the performance of others, both within teams and service-wide.

Promote clear and well-defined rules and procedures. A common understanding of how even routine tasks are completed is a critical way to build trust within small teams. New members of small teams may have some level of initial trust conferred if the military system is able to cultivate category-based trust. This basis of trust, however, is not likely to be robust enough to form a base for highly interdependent behaviour. Exhibiting common understanding of procedures and rules is one way to facilitate the development of trust.

Provide strong and positive leadership. As noted earlier, leadership plays a key role in promoting trust within infantry teams. Through competence, integrity and the communication of unit values, a leader can build and sustain trust with his subordinates and promote trust by helping to build a positive command climate. This speaks to the importance of direct and personal contact between leaders and followers in building and maintaining trust. Even when direct and personal contact is not available, a strong leader can also be an important role model and foundation for category-based trust within the military system. Strong and positive leadership is a key facilitator of trust.

Create an environment with a strong, positive value base. It is impossible to have fully developed trust within teams, or within the military system as a whole without strong and positive values. Values provide standards for trust both between individuals and within an organization as a whole. It is critical to create a strong moral centre within organizations in order to maximize trust, and to ensure that this centre is pervasive through all levels of the military hierarchy.

Promote identification with a positive overarching military identity. At its highest level, trust is based on identification with other people or with other meaningful categories or social groups. Providing a strong military identity is the best way to promote trust at both a personal and an impersonal level. Within small teams, a strong common identity allows for presumptive judgements of trust to be made about new team members. In a broader context, identification allows for assumptions of trust for anyone who shares this identity. It is not enough, however, to merely promote this identity. Many organizations are capable of promoting a strong corporate identity with the proper marketing tools. It is critical that this identity is associated with expectations that are

confirmed and perpetuated on an ongoing basis. At the same time, however, it is also noted that identification-based trust is not without its hazards, as Winslow's (1998) work attests. Further exploration of identification and, in particular, of subgroup differentiation is critical to understand how to create trust within small teams without creating a negative interpersonal environment within the military system as a whole. We argue that providing strong and inclusive values at an organizational level is critical to promoting positive identification.

Chapter 11 – Trust and Common Intent

This section explores the relationship between trust and intent in a military context. Although trust is commonly cited in military literature as being relevant to the promotion of common vision and purpose (e.g., Cox, 1996, Ivy, 1995), the exact nature of this link has yet to be elaborated. The first part of this chapter reviews the theoretical concept of Common Intent as advanced by Pigeau and McCann (1995), and is taken from a recent review (Bryant, Webb, Matthews, and Hausdorf, 2000). The second part of this chapter examines the relationship between trust, Common Intent, and Command Intent.

11.1 Intent as a Theoretical Concept

The military use of the term *Command Intent* can be contrasted with use by Pigeau and McCann in their theory of "*Common Intent*". Stemming from their concern that the term *Command and Control* has lead to an over-emphasis on technological solutions to *Control* that lose sight of human centred issues of *Command*, Pigeau and McCann start by offering separate definitions of command and of control.

Command: "The authoritative andresponsible expression of creative human will for the attainment of a mission."

Control: "The application of structure and process for the purpose of bounding the mission's problem space."

These definitions more clearly distinguish the authority aspect of command from the coordinating aspect of control and lead to the following definition of C2:

Command and Control (C2):
"The establishment of common intent to achieve coordinated action"

While this definition of C2 puts the human element of command on equal footing with the process of control, it raises the issues of what constitutes intent and how intent functions to guide action. A brief outline of some key concepts from Pigeau and McCann is provided below.

As part of a broader perspective on command, intent is seen as the general connotation of a specific purpose. This general intent is divided into two parts, *explicit* intent and *implicit* intent. Explicit intent is publicly communicated directions such as written or verbal orders that convey a plan; i.e., not just a commander's statement of intent, as in military usage. However, even with lengthy directives, some intentions and details of how intentions are to be implemented are assumed, left to unspoken expectations, or referred to only at a higher level with the details unspecified. This leads to the complementary concept of implicit intent.

Implicit intent, in contrast, is internalized collective and individual knowledge and expectations that may never be directly expressed, though it may be presumed upon to guide actions, consciously or otherwise. Given the natural limitations of any language or vocabulary, even an explicit communication cannot convey all the information intended by a sender. Interpretation of an explicit communication will always be based on a rich network of implied meanings that qualify and elaborate the particular words. Thus, the concept of *implicit intent* refers to all of the connotations latent in an explicit communication. Implicit intent derives from the extensive knowledge bases

people acquire through experience, such as beliefs, values, habits, expectations, and personal styles, in or out of the military.

Thus, overall *common intent* is derived from explicit and implicit intent and may be seen as the sum of all shared knowledge (however acquired among two or more individuals) related to the implementation of a specific mission. This collective knowledge includes both goals and means and can be shared among many people representing different specialties. The term "knowledge" also encompasses attitudes, values, and beliefs that make up the affective aspect of intent. Implicit intent is seen as especially important when the mission must be achieved in the face of unforeseeable and unexpected changes, or directions communicated briefly under extreme time pressures.

The composition of overall intent (explicit and implicit) within an individual is described in terms of an *intent hierarchy or pyramid (see* Figure 11.1*)*. Within Figure 11.1, the relative size of the components depict the relative importance and influence of the different components in the hierarchy.

The top layer of explicit knowledge is derived from communications such as orders or directives related to the mission in question as well as dialogue about the mission in the form of discussion, questions and answers. This is seen as the most visible but smallest and least influential layer.

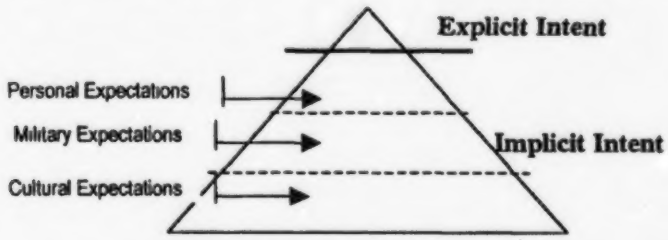


Figure 11.1 - Intent Pyramid

This explicit layer builds on further layers of implicit expectations based on personal, military and cultural education, training, and experience. These include, for example, expectations of how specific military procedures associated with the explicit orders should be executed. The personal layer is based, in its turn, on a larger, more influential layer of general military expectations. The military layer is comprised of doctrines and traditions that govern expectations about how to conduct oneself and relate to others and how operations should be carried out in general, not just specific orders for specific operations. Finally, this military layer is based on the broadest cultural expectations about national interests, societal and moral values. The lower the layer, the earlier its acquisition, and the more enduring and resistant to change it is expected to be.

Although depicted as a pyramid, there is no a priori evidence that the relative degrees of influence of the three implicit layers are distributed in such an orderly fashion. In fact, the three layers are closely inter-related. Military organizations are created within a set of cultural expectations, although they may develop in ways different from the culture as a whole. Likewise, people are greatly influenced by the culture in which they are born and live. A culture, however, changes over time as the result of the influences of all the individuals and institutions that make it up. Thus, it can be difficult to relate any aspect of an individual's or group's beliefs, attitudes, or values exclusively to one particular layer of expectations.

Sharing Intent

For a group or several groups of individuals to work toward a common end through coordinated C2, intent must be shared within and between teams in the organization. Explicit and implicit intent are assumed to be shared between people in different ways.

Explicit intent is shared through explicit communication in some form (usually written or verbal directives).

In contrast, sharing implicit intent is seen as a long-term preparatory activity that must be supported by the whole military organization. Organizations must support development of *shared* implicit intent by supplementing formal activities such as education and training in doctrine and procedures with opportunities for team building and personal interaction. These activities convey implicit knowledge, expectations, and values that people internalize.

Implicit intent may be acquired without conscious effort or awareness. Individuals are influenced by others who have subjective value and importance. Through repeated and prolonged interaction, individuals learn what others believe and value and begin to take on those beliefs and values themselves. The process, however, is not exclusively implicit. People or organizations may consciously promote or seek opinions and views of others to achieve consensus.

Four ways are proposed by which individuals can share their intent, although these four ways seldom operate in isolation one from the other. First, *dialogue* is a means of sharing *explicit* intent. Through reciprocal communication, specific mission related information is conveyed about objectives and processes. This presumably occurs during activities such as rehearsals, planning meetings, and mission related training as well as briefings, questions and answers.

Socialization is a means of sharing one's *implicit* intent whereby one person observes another and draws conclusions about the beliefs, goals and capabilities of others. Socialization may occur during dialogue as one "reads between the lines" or observes the demeanor of the person providing the explicit communication, or be based on non-verbal social interaction. It is a relatively slow process requiring many exposures in many different contexts.[1] Examples might include membership of sports teams and participation in unit training exercises, or meeting friends.

Externalization is a means of sharing one's *implicit* intent through creative or expressive acts, such as the use of metaphor, anecdotes, or demonstration of a problem solving approach. Such acts derive from one's rich implicit understanding and even intuition. Once expressed, one person can consider what had previously been concealed or implicit within another's intent hierarchy or pyramid. A military equivalent might be the sharing of "war stories."

Finally, *internalization* is the process whereby each of us integrates *explicit* information from others (whatever the medium of communication) into the implicit levels of our own intent hierarchy or pyramid. This process might be active or unconscious.

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[1] It is important to observe another person's actions on several occasions in different contexts to identify the beliefs and values that seem to be consistent to that person. A single instance of behavior in one context may reflect a wide variety of situational factors that do not reveal anything about the person's internal beliefs.

Common Intent

Common intent for a given group is seen as the sum of all shared mission relevant knowledge, however acquired. Establishing common intent is seen as critical for an organization to coordinate goal related efforts. Common intent serves as a referent for members of the organization. They are able to compare the state of the mission at any given time to the common intent and then take any corrective action needed to ensure the organization's actions are working toward that intent.

The extent to which and the manner in which common intent is achieved are seen as related to a number of factors. These include the degree of centralization within an organization and the style of leadership. For example, more central organization requires more explicit expressed intent in the form of written orders, rules and regulations. The degree of centralization within a given organization may itself fluctuate according to the type of mission, the experience of the organization with that type of mission, familiarity with the context of operation, and the longevity of the relationship of the members of the organization. Thus, members of a unit that has long experience of conventional warfare procedures working among Canadian army units in a European theatre may need less explicit direction than the same unit working for the first time on a peace keeping mission in a strange country as part of a multi-national force in collaboration with different civil organizations. Moreover, different styles of leadership are also seen as associated with different patterns of sharing explicit and implicit intent with distinctions between autocratic, charismatic, and transactional leadership styles.

The degree to which the individuals under command have common intent among themselves and with the commander is proposed as a key factor underlying mission success. The greater the degree of common intent, the greater should be the probability that the group will work together effectively and efficiently. Moreover, the greater the degree of common intent, the lower the probability of misunderstanding and/or uncoordinated actions among individuals, especially in the face of unexpected circumstances.

Command Intent

Command intent refers to the purpose, desired result, and approach to conducting a particular mission in the mind's eye of a commander. The term "*command vision*" is sometimes attached to the idea of command intent and it reflects the notion that command intent is the overarching mental structure for a particular operation. Command intent is expressed through a number of specific means, as prescribed by military procedures. One such means is the commander's statement of intent, which is a document that expresses some aspects of the command intent (we assume that any statement will cover only a limited portion of the command intent). This communication, like any other, will represent a selective balance of implicit and explicit intent based on the communicator's assumptions about pre-existing common intent.

11.2 Linking Trust and Intent Overview

Small infantry teams work in environments where both trust and intent are critical. Military operations present the ultimate forms of risk, vulnerability and uncertainty and present challenges to both trust and the ability to maintain a common vision and purpose. This section explores the relationship between trust, command intent, and common intent.

11.2.1 Linking Trust and Command Intent

One of the mechanisms by which command intent is realized is through a statement of command intent. A statement of command intent is typically seen as representing the purpose and desired end state of a mission. As Bryant et al. (2000) argue, statements of command intent typically address what should be accomplished, but leave the "how" to the discretion of the lower level commanders. This statement of command intent, however, serves as the basis for more elaborated plans, which include the task, the deadlines, and information about relevant procedures.

The nature of the relationship between trust and command intent, of course, is an empirical question. Existing theories about command intent do not appear to address this issue. It is possible, however, that trust may influence a commander's statement of command intent in several ways. As Bryant et al. (2000) point out, the content of a statement of command intent will have varying levels of implicit and explicit intent, depending on a commander's assumptions about the pre-existing levels of common intent. One of the reasons that this might be true is that high levels of common intent allow predictions about how followers are likely to perform. The existing trust literature suggests that trust also enables confident predictions about other people. Trust may also impact on the level of explicit and implicit detail contained in a statement of command intent. If a leader issuing a statement of command intent can predict with some certainty what followers are likely to do in a given situation, elaborate orders that address every possible contingency may be unnecessary. With trust in place, statements of explicit command intent may be less elaborated. This trust in followers' abilities, however, relates not only to their ability to understand and execute explicit direction, but to also be able to properly decode the implicit details within a statement of command intent. Higher levels of trust, then, may also enable a higher level of implicit intent to exist within a statement of intent. An established basis of trust may provide commanders at all levels with the assurance that the people with whom they work will exercise discretion in translating broad mission objectives into an actual action plan that defines how the task will be completed. If trust is not in place between a commander and his followers, it may be critical to attempt to eliminate potential misunderstandings and miscommunications by providing fewer statements that convey implicit intent, and more information as well as a higher level of explicit intent in the statement of command intent.

It is important to point out that there are many different forms of trust, and many different dimensions that are likely impact on judgements of trustworthiness within the military domain. In the commander/subordinate relationship, competence in executing technical military skills is likely to be an important determinant of trust. Believing that followers are positively motivated to act with integrity and benevolence, and knowing that they have shared values, are also likely to play key roles in judging followers' ability to successfully complete their missions.

Similarly, command intent is also likely to influence trust within infantry teams. A statement of intent provides explicit information about what a mission is designed to accomplish. In this respect, it lays out and elaborates on the goal to be achieved. As noted earlier, shared goals facilitate trust, as they provide information about what others are likely to do. This information aids in prediction and facilitates trust. Command intent may also facilitate trust by providing evidence of shared values and attitudes. A statement of intent represents not just the information and facts that it contains. It is also a statement of the military system's priorities and values. A statement of command intent that provides the objective of a particularly risky humanitarian intervention, for example, carries both explicit and implicit messages about what is valued within an organization. To the extent that the values inherent in a statement of command intent are consistent with soldiers'

personal values, this could facilitate trust in both the leaders issuing the statements, as well as promoting trust in the system that leaders represent.

Statements of command intent also provide clear standards by which to judge not only the progress of the mission, but also the relative achievements of other team members. The perceived competence of other team members, and the trust that is conferred on them, may be influenced by the extent to which they rise to implicit or explicit standards presented in the statement of command intent.

11.2.2 Linking Trust and Common Intent

> *The ultimate benefit of establishing a climate of trust for Command is the fusion of individual humans each with their own skills, temperaments and experiences, into a single team that shares the same model of the military situation, has a common understanding of the mission and expresses the collective will to achieve it*
>
> Pigeau and McCann, 1995

As the above quote suggests, trust and common intent appear to be closely related. The exact nature of this relationship, however, has not been elaborated in the available literature. As the development of both trust and common intent is critical within infantry teams, it is important to attempt to explore how they may be related.

We argue that the same processes that promote the creation of common intent may also facilitate the development of trust. At the most basic level, both trust and implicit intent are based on expectations of other people that arise from values, attitudes and beliefs. These expectations are not centred only on facts or information, but also involve feelings and emotions. Expectations enable predictions of what others are likely to do in future situations. Certainly, there is some overlap between the trust-relevant expectations and those that may be relevant in forming implicit intent. Cultural expectations, for example, can contribute to judgements about the trustworthiness of other people (Doney et al., 1998), and also form an important part of the intent pyramid.

Despite these similarities, however, trust and implicit intent differ in the range of events that they predict. Trust, of course, is also based on positive expectations of how trust partners are likely to behave or to be motivated, typically (but not exclusively) toward oneself. In short, trust allows one to make confident predictions about another person's behaviours and benevolent motivations (Rempel, Holmes, Zanna, 1985). In the case of implicit intent, however, these expectations have a much broader focus, and involve not only trust-relevant expectations about other people, but also expectations about others that are not necessarily relevant to trust. In addition, implicit intent also includes expectations about a wealth of non-social information (e.g., information about tasks, equipment, military procedures, rules etc.). Trust predicts a much more constrained set of events.

For both trust and implicit intent, however, the accumulation of knowledge enables anticipation and prediction. At their core, then, both trust and implicit intent help to improve predictability within an uncertain environment.

One way to conceptualize the accumulation of expectations and knowledge that occurs during both trust development and the creation of implicit intent is that this knowledge forms mental models. A defining feature of mental models is that expectations are viewed, not as isolated pieces of information, but as being increasingly integrated into coherent knowledge structures (Cannon-Bowers, Salas, and Converse, 1993). This organization of knowledge allows for easy retrieval of

information when needed. Further, we argue that trust and Common Intent may be linked through their mutual association with mental models.

The concept of shared mental models has many similarities to the theory of Common Intent (Bryant et al., 2000). Both argue that teams will work together and will perform more effectively if they have a shared knowledge structure that contains information about both each other and of the situation. Mental models and Common Intent also both specify what roles each member of the team should play and help to enable team functioning by facilitating predictions about the information that each person is likely to need and about how the system as a whole will perform. Both also speak to a common team goals that guides the efforts of the team (Bryant et al., 2000). An extensive review of the theory of Common Intent has argued that shared mental models are closely associated with the theory of Common Intent.

On the other hand, it should be noted that the only reference to mental models in the available trust literature briefly mentions mental models when discussing issues that trust researchers should pursue further (Dirks, 1999). This lack of consideration of mental models, presumably, is more related to the issue of trust research still being at an early stage rather than trust researchers seeing the two concepts as unrelated.

In order to elaborate the relationship between trust and mental models, however, it is necessary to explore the concept of mental models in more detail. Mental models refer to organized systems of knowledge that are used to describe behaviour and events (Cannon-Bowers, Salas, and Converse, 1993), and may be comprised of knowledge about objects, systems or people. In order for teams to coordinate their actions, they must be able to predict the requirements of a task and the requirements of other team members. Once these requirements have been anticipated, team members must then be able to adapt their behaviour to the needs of other team members and to the requirements of the task. Cannon-Bowers et al. (1993) argue that the members of effective teams are able to draw on an internal knowledge base that helps them decide which behaviours are required in a timely manner. Effective teams gain the ability to coordinate, adapt and predict each other's behaviour by developing team mental models. These mental models provide a base from which predictions and expectations can be accessed when needed to perform a cooperative task. To the extent that these mental models generate similar expectations of the task and of the team, team members are said to have overlapping mental models.

Cannon-Bowers, Salas, and Converse (1993) posit that any system that a team encounters may be conceptualized as representing several simultaneous mental models. Such models might include models of the equipment and operating procedures, models of the task, models of team interaction (including information about roles and responsibilities) and models of team members themselves (knowledge about each others' skills, competencies, tendencies and preferences). When team members have overlapping mental models of the equipment and of other team members, they are more likely to be able to perform effectively as a team.

As noted earlier, trust and team mental models have many common features. Both trust and team mental models are based on expectations about other people. The expectations that give rise to trust may well be one small part of the global mental model that we create about another person, as the expectations that we develop when we come to trust another person include this person's skills and competencies, preferences, and their behaviour patterns. Both trust and team mental models enable people to "describe, explain and predict" (Rouse and Morris, 1986; in Cannon et al. 1993). Trust

serves a similar, albeit more constrained, function. Trust and team mental models are closely related.

It is important to note, however, that there are some important differences between the models that we develop when we come to trust other people and team mental models as described in the current literature. In trust, the expectations associated with trust speak to not only behaviours, but also another person's motivations to act in a particular way. The issue of motivation (e.g., to behave benevolently) does not appear to have a prominent emphasis in the available literature on mental models. Perhaps the most critical distinction between trust and shared mental models is that trust is only necessary because shared mental models will always be inadequate. If we would wholly understand and predict other people, there would be no need to trust them (assuming, of course, that their behaviours and motivations are seen to be positive). Recognizing that this is not possible, we need to trust in order to reduce the uncertainty that arises from not knowing other people completely. Completely shared team mental models would, at least theoretically, lessen the need for trust as there would no risk, vulnerability or uncertainty to bridge.

It may be the case, then, that forming mental models is an important part of both establishing shared common intent and the process of establishing trust in another person. In the context of relationships, shared mental models can contribute to a larger shared knowledge about others, and this knowledge can also be used to assess the trustworthiness of others. Trust may stem from the aspects of a broad mental model of another person which provide information about a person's competence or integrity. It may be the case that shared mental models underlie both trust and common intent.

Despite the plausibility of the argument that trust and team mental models are related, however, it should be noted that empirical research has yet to show strong evidence of this association. A study by Rentsch et al. (1998) explores the role of shared mental models in predicting interaction and performance on a simulated rescue task. As expected, more accurate team members' mental models did predict better performance on the rescue tasks. One might expect that as trust enables prediction of others, that team members with higher level of trust would have more accurate models of their teammates. The opposite path of causality could also be argued; if teammates have highly common mental models of each other, they would also be more likely to trust each other. Unfortunately, results of this study suggested that trust was not associated with the accuracy of team members' mental models, as high trust individuals were no more likely than low trust individuals to have accurate mental models of their partner or of their partner's performance.

It should be noted, however, that these null results are perhaps not surprising in light of the measure of trust used in this research. The Interpersonal Trust Scale (Rotter, 1967) measures a generalized expectancy of trust in others, and is most commonly used as a measure of one's global propensity to trust other people. As trust theorists have noted, however, (e.g., Holmes, 1991), the Interpersonal Trust Scale is not a particularly good predictor of trust within specific relationships where people know each other. The measure of trust used by Rentsch et al. (1998) may not have accurately captured trust between familiar team partners, and this might explain why the team mental models were no different for high trust vs. low trust relationships.

If trust and common intent are closely related, it is important to consider whether the factors proven to enhance trust also enhance common intent. This, of course, is an empirical question that will only be conclusively answered with future research. In general, however, the existing trust literature does provide some evidence that the factors that promote trust may also promote common

intent. As noted earlier, for example, trust improves communication through the freeing up and transmission of information (O'Reilly, 1978). As noted in the exploration of trust and command intent, within a military context, trust may enable better transmission of orders and explicit written communications. Moreover, as trust also gives rise to more open and honest communication, it may also facilitate the development of explicit intent through sharing of ideas and knowledge. This could promote the sharing of explicit intent through dialogue. If trust positively influences dialogue, it also increases Common Intent. It is also important to note that anticipatory communication has also been seen as evidence of shared mental models (e.g., Sperry, 1995; cited in Bryant et al., 2000). It may also be the case, then, that teams with high levels of trust may also be more adept at anticipating the information needs of their teammates.

Trust may facilitate the socialization processes that promote sharing of implicit intent. As socialization involves "reading between the lines" of other people's behaviour, people who have worked to develop trust in others are likely to be more adept at observing and understanding the behaviours of others. The process of developing trust in another person requires not only observation, but also interpretation of their behaviours (Rempel, Holmes, and Zanna, 1985). People who have wide experience in establishing trusting relationships with others may well be more adept at socializing with other people and at making decisions about their beliefs, goals and capabilities. This may be the case because such people have formed mental models that facilitate decisions about others. People with long histories of trusting other people have likely also received feedback about whether or not their judgements of trustworthiness were accurate. This feedback may prompt people to re-calibrate their judgement processes in order to best determine how to invest their energies in others. People who are judged to be a good risk may be worth engaging in more intensive socialization processes. Trust may promote the sharing of common intent by promoting both dialogue and socialization processes. Put another way, the processes undertaken while developing trust are likely to enable the sharing of common intent.

Moreover, in the context of infantry teams, trust is also likely to promote common intent indirectly through its impact on building and maintaining a positive command climate. Trust is based on not only predictability, but also on believing that others are genuinely concerned for our well-being. Trust is likely to create an environment conducive to the processes such as socialization, externalization and internalization that promote the sharing of both implicit and explicit intent. Clearly, highly developed trust within infantry teams should facilitate the sharing of implicit intent and heighten common intent.

Common intent is also likely to improve trust in several ways. Common intent derives from shared knowledge of roles and shared rules of both conduct and procedure. To the extent that two soldiers have a common view of how a particular task is to be done, for example, they may be said to have shared common intent on this issue. It is clear from the trust literature that knowledge of roles and rules also promote trust, as they structure the interpersonal domain, and help to predict what others are likely to do (e.g., Kramer, 1999). Again, mental models may link common intent and trust. People with high levels of common intent will likely have more complex models of roles and rules. These models may also facilitate trusting other people. Common intent may also promote trust.

An environment with shared common intent is also conducive to the development and maintenance of trust. Simply put, people who share the same expectations are more likely to trust each other. This is true for at least a couple of reasons. Perceived similarity reduces the risk of engaging in trusting behaviour as it creates the expectation that others with characteristics similar to oneself will reciprocate, and also engage in trustworthy behaviour (McAllister, 1995). Common intent may

promote trust though similarity, and the enhanced ability to predict associated with it. Common intent may also provide a basis of common group membership. Any way in which people are similar, arbitrary or real, can serve as the basis of identification. People who have shared common intent have a common vision, a vision that distinguishes them from those who do not have common intent. Even this form of commonality may be a basis for presumptive or category-based trust.

In a very real way, then, common intent and trust are related by virtue of their mutual association with identification. In many ways, the development of common intent can be seen as the increasing knowledge of, and acceptance of, an overarching military identity. This, of course, begins with implicit intent, as personal, military and cultural expectations become elaborated through training, education, and life experiences. Moreover, as implicit intent evolves over time, these expectations are increasingly incorporated into a person's own view of their role and purpose as a member of the military establishment The sharing of common intent, however, is facilitated not just by acceptance of a disembodied identity, but by the progressive accumulation of knowledge, common values and experiences gained through training, and by exposure to individuals within the military system, at whatever level, who both represent and actively create the identity.

At the highest possible level, trust is also predicated on identification. The highest forms of trust come to fruition when a person comes to see another person as sharing a common identity. This can occur through increasing personalized knowledge and assimilation with that person's identity (Lewicki and Bunker, 1996), or through linking that person with a salient identity that allows immediate predictions and expectations of trust (Kramer, Brewer and Hanna, 1996). Whatever the path, whenever a person comes to truly see another person as sharing a common identity, trust is facilitated.

The ideal situation, of course, would be that all members of the military have access to and share a common military identity, that this identity is both strong and salient, and that this identity guides both thinking and behaviour. Identification represents a most important link between common intent and trust. Perhaps the best way to promote both common intent and trust within military teams is to promote identification. Within small teams, then, it seems likely that many of the same factors that contribute to shared intent (e.g., identification) will also positively influence trust. Moreover, it is also clear that the concept of trust also broadens the concept of common intent in an important way. Trust between people demands not only a common understanding, but also faith in a common motivation to act in each other's best interests.

We argue, then, that trust and common intent are closely related, in part, through shared mental models, and that trust and common intent mutually influence each other. Moreover, communication content and patterns may also be a useful, objective indicator of both. An obvious question that arises from this analysis is whether common intent requires a high level of trust and whether trust within teams requires a high level of common intent. It seems possible that although developing highly developed trust within small teams will ideally be associated with higher levels of common intent, trust can develop even without shared intent. This may occur, for example, as the sheer product of ingroup bias. Members of small teams may closely identify with each other, and be very capable of trusting each other, even in the absence of a common vision and common goals. The negative effects of this kind of trust, however, have been evident in the past in military teams that showed extreme loyalty that manifested itself in inappropriate behaviours and a general breakdown in discipline (Winslow, 1998). It might be argued, then, that within military settings, trust without

common intent may well exist, but that its existence is meaningless (and perhaps even dangerous) without the common vision and purpose that shared intent provides.

Similarly, it is also possible to consider whether common intent requires a high level of trust. The existence of common intent within a military unit would seem to provide a strong basis for trust. People who share a common goal, and similar attitudes and knowledge with others would likely possess many of the confident predictions required to trust others. At the same time, however, it seems possible to have a team with a highly common goal and vision in which team members have failed to establish true because of a failure to cultivate the emotional bonds associated with many trusting relationships. Although is possible to imagine that lesser forms of common intent could exist without trust between teammates, it is impossible to imagine a team with a highly developed level of common intent without some level of trust. The ideal situation for military teams to be maximally effective is to have high levels of both trust and common intent.

11.3 Research Implications

The material reviewed in this section suggests a need to extend trust research even further to understand trust within infantry teams. An analysis of the relationship between trust and Common Intent suggests that shared mental models may underlie both. This suggests that promoting both trust and Common Intent may be possible by enhancing shared mental models, and raises a number of issues for future research:

- Although existing trust research has given little attention to the concept of mental models, the link between the two concepts is conceptually strong. At a broad level, both trust and mental models enable predictions of other people. Trust in another person may be seen as stemming from a specific portion of one's global model of that person. The relationship between trust and mental models should be explored in more detail within the current research. The extent to which small team members have shared mental models of each other may well predict how much they trust each other.
- A key aspect of this research will be understanding whether the factors that facilitate common intent also promote trust. Anticipatory communication is one important dimension to explore in the context of the current research, as it is related to both common intent and trust. Communication is also seen as a critical contributor to trust. It may be the case that high trust teams are better able to communicate because they have better mental models of what other teammates are likely to do or to need. Similarly, teams will high levels of anticipatory communication are also likely to be more adept at both building and maintaining trust. This issue needs to be explored further.
- This analysis also leads to a number of empirical questions. Do teams with high common intent also have higher levels of trust? Similarly, do high trust teams show high levels of common intent? Most importantly, are shared mental models the link between trust and common intent?
- In exploring the relationship between trust and shared mental models, it will be important to broaden the typical scope of mental model research to include attributions of others' motivations in addition to focusing on behaviours, roles, skills and preferences.

- This analysis suggests that the establishment of Common Intent and trust are both life-long processes. It may be important to consider an individual difference measure that may capture the common shared expectations that give rise to both. This may include cultural expectations, military expectations and personal expectations.

Chapter 12 - Measurement of Trust

In this section, we describe measures and methods that may be used to study trust in the context of small military teams. First, we describe approaches that may be useful in exploring team trust. Then, we present specific methods and measures for the study of trust in small teams.

12.1 Approaches

Before examining specific measures and methods, we will briefly review some standard research paradigms and their applicability to examining trust.

12.1.1 Experimental Research

Experiments generally follow a factorial design in which one or more independent variables of interest are varied and the effect of the variation is measured in terms of other dependent variables. The literature reviewed provides several examples of experimental efforts to study trust.

In the studies reviewed, trust has frequently been conceptualized as a dependent variable. In such cases, trust within teams has been measured before and after the completion of a team project (e.g., Jarvenpaa and Leidner, 1999). Trust has also been used as an individual difference variable. Research by Rentsch et al. (1998), for example, explored whether pre-existing differences in trust were associated with differences in team mental models. The impact of experimentally manipulating people's trust orientation has been explored in two studies (e.g., Dirks, 1999; O'Reilly, 1978). In Dirks (1999), for example, trust was experimentally manipulated to be either high or low in each of two experimental groups, and measures of group process and performance were used to explore whether high trust groups showed enhanced group processes and performance.

Several considerations are relevant in designing experimental research exploring trust in small military teams. First, it will be important to find a balance between maximizing the experimental realism of the military setting, and exerting the necessary experimental controls. Although it is important that the proper controls are in place, it is critical that the true essence of trust is represented in the experimental tasks.

At the early stages of exploring trust in small teams, however, there may be some merit in conducting work with higher control but less realism. This is true because the study of trust generally is still in relatively early stages and some of the ideas about trust and some of its impacts on performance, for example, have yet to be firmly empirically established. Moreover, it is not exactly clear how well findings in the existing trust literature, predominantly conducted in extremely artificial settings and outside of the true team settings, will hold for trust in small military teams. There may be considerable value in beginning research in more artificial and controlled settings. Once the phenomenon of trust in small teams has been captured, this would allow expansion to more realistic settings.

Secondly, studying trust in small teams will require creating situations in which the contextual factors of risk, vulnerability, and uncertainty are prominent. There are, of course, ethical issues inherent with creating high levels of risk and uncertainty in experimental settings.

Lastly, particularly in the latter stages of this research, study participants should be representative of the target user population to the largest possible extent. Participants should ideally be military

personnel who regularly perform in the context of small dismounted military units. It will also be critical to control for various background factors that may impact on trust. As trust is predicated in part on judgements of the competence of others, for example, it will be important to either control for differences in participant's military background and experience or to match participants on these dimensions. Choices will also need to be made as to whether fixed preexisting teams are of interest, or whether ad-hoc teams formed for the study only are of interest.

12.1.2 Correlational Research

Correlational research is used to explore relationships among variables of interest, but does not allow statements of causality. Nonetheless, correlational research can be helpful particularly at the early stages of research in exploring whether variables of interest are related as a prelude to more rigorously controlled experimental approaches.

Correlational research is represented frequently in the existing literature (e.g., Britt, 1999; Simons and Peterson, 2000) and is used to explore the strength of association between trust and other variables of interest (e.g., conflict, team performance).

12.1.3 Field Observation

Laboratory based experiments are not always feasible due to constraints of time, money and availability of participants. Field observation enables study even in situations that preclude laboratory-based investigation. Quasi-experiments are one form of field observation. In quasi-experiments, the researcher is typically not able to exert control over all the independent and dependent variables.

Trust has also been explored using field observation. Hughes, Rosenbach and Clover (1983), for example, conducted a quasi-experiment in order to study whether trust and other indicators of team performance were improved by team building exercises.

12.1.4 Interviews

The studies reviewed also used interview techniques to explore trust. For example, Thomas and Barios-Choplin (1996) conducted interviews with several units in order to understand the factors that differentiated effectively led units from units with poor leadership. These interviews used an open-ended format to explore how issues of trust impacted on perceptions of leaders.

12.1.5 Simulation

An increasingly important means to examine complex behaviour is through simulation. Simulation can allow researchers to recreate the complexity of an environment or task domain for the purpose of creating realistic and challenging settings in which to observe human behaviour.

The available literature suggests that, to this point, simulation has not been used in the study of trust. In studying trust in infantry teams, however, simulation may be a critical tool to capture not just judgements of trustworthiness, but the actual behaviours associated with trust. The use of simulation would represent an important extension of the trust existing research, and a critical means by which to maximize experimental realism.

12.2 Specific methods

Two methods explored in recent reviews of common intent are likely to be useful in the study of trust in small teams. The following material regarding probe techniques (with some adaptation) is taken from Bryant,Webb, Matthews, and Hausdorf (2000).

1. **Probe techniques**
   Two forms of probe technique are potentially relevant to the study of trust: a "*freeze*" probe and an "*embedded*" probe. Both kinds of probes can be administered at an individual or team level but must be used in conjunction with a scenario or task setting.

   A *freeze probe* is derived from the Situation Awareness Global Assessment Technique (SAGAT) method (Endsley, 1995). Using this approach, a scenario would be momentarily frozen (or an exercise interrupted) and questions posed to participants regarding their current expectations. In the case of the proposed research, the knowledge to be probed would be the extent to which prior expectations about a fellow team member's behaviour have been shown to be accurate to that point in time. The probe could also ask teammates to predict their partner's probable behaviour in the remainder of the task. This knowledge could involve predictions about the behaviour, as well as the motivations of teammates.

   The advantage of the freeze probe technique is that it directly queries the (almost) current state of knowledge with little chance for memory decay. Virtually any aspect of the knowledge state can be probed. The major disadvantage is that the method may disrupt on-going task related information flows and it may risk inducing artificiality to the task. Once participants know that they will receive such interruptions and probes, they may change their natural behaviours to meet the demands of the test environment. Furthermore, once the scenario is resumed, participants may have to expend time and cognitive resources to regain awareness and resume tasks in hand.

   A variation on this approach would be to tape the scenario and then conduct a walkthrough with the participants afterwards and probe for their recollections of their expectations at predetermined points in the scenario. The disadvantage of this approach is that memory fades and that responses may be distorted by information gained at other points during the scenario.

   An *embedded probe* is an item of information or request for information injected naturalistically into the ongoing scenario. The probe can be disguised as part of the normal message traffic or flow of data thereby creating no interruption to the normal state of activity of participants. Participants' responses to the probe occur as part of their normal operational actions and are captured as data. The embedded probe method allows for a good range of flexibility both in terms of how and when the probe is delivered and the nature of the responses expected. A probe could have any of the following characteristics:

   - Information provided in a briefing package.
   - Information provided at the beginning of a scenario/task.
   - A message from outside the task setting.
   - A message from within the task setting (by paper, direct voice, or audio net).
   - Information embedded in normal displays.

   Although it is not possible at this stage of the analysis to prescribe the circumstances in which each type of probe might be adopted, there is one major constraint that should be noted. In

general, the longer and more complex the test scenario, the less control can be exercised by the measurement team over the evolving conditions. Hence, there may be a need to artificially halt an evolving scenario at several points during its unfolding and to return to a baseline state. In such a circumstance, the freeze probe methodology might be more suitable than the embedded probe technique.

Probe techniques are likely to be useful in simulations of trust over time. As such research has not yet been attempted, it is unclear whether ratings of trust as team members perform cooperatively will show meaningful variation over the short periods of time that are likely to be available within simulations. This, of course, is an empirical question. As other forms of social judgements, stereotypes, have been shown to be dynamic after even brief encounters with others (Adams, 1998), trust may show meaningful variation over time as well.

2. **Methods for measuring mental models**
Techniques for measuring mental models may also be useful in studying the predictions associated with trust. This material (with some adaptation) is taken from Bryant, Webb, Matthews, and Hausdorf (2000).

Kraiger and Wenzel (1997) have reviewed a number of potential methods for measuring shared mental models. These methods assess knowledge, behavior, and attitude components of mental models in terms of commonalties among team members.

- **Categorization**: Team members are given cards listing common attributes of teams, diagnostic steps, action steps, or situational cues to sort into categories of their own devising. Statistical analysis techniques such as Multidimensional Scaling (Kruskal and Wish, 1978) or conceptual mapping are employed to uncover the dimensions underlying each member's sorting and to compare the overlap in organization among members.
- **Probed Protocol Analysis**: This is an interview technique in which members of a team are provided with a series of steps necessary to perform a team task and asked to explain the rationale of each step and the functions of other team members. Answers are scored for correctness and for the degree to which they overlap with answers of other team members. As roles impact on trust, this would be a meaningful way to understand perceptions of shared roles.
- **Structural Assessment**: This technique assesses the organization of knowledge in team members' mental models and how members jointly define interrelationships among key concepts. Participants are presented with a set of core concepts pertaining to the team task, resources, roles, etc. Participants then provide similarity or relatedness judgments among every possible pair of concepts. A data representation process, such as multidimensional scaling or link-weighted networks, is used to generate concept maps for each participant, which are then evaluated to assign an index of sharedness at the team level.
- **Shared Expectations**: The extent to which members of a team share common task and team expectations can be assessed by asking each member to indicate what other team members are likely to be doing at any point in time (typically with respect to a scenario to allow concrete predictions). The accuracy of these expectations is scored by their correspondence to observed or specified behaviors for each team position.

12.3 Criteria, Measures and Methods

Based on a framework used by Matthews, Webb and Bryant (1999), we have identified measures and methods in the literature reviewed applicable to trust in small teams with respect to three elements. First, a criterion identifies a broad dimension of interest. Specific measures and methods are then used to specify and operationalize the criterion. In many cases, there are multiple measures and methods applicable to a given criterion that provide differing levels of diagnostic power, or are applicable in different contexts. Within any system of evaluation, a criterion may be fairly constant, but the measures and the methods used to capture the dimension of interest may vary depending on the need for precision and the availability of resources. Finally, a standard by which to interpret the data must be chosen. Standards cannot be chosen at this stage as they will vary depending on the experimental context chosen and on the demands of the experimental situation.

In the remainder of this section, we suggest criteria, methods and measures for different aspects of trust reviewed in earlier sections. This is done with respect to the measurement of trust as both a psychological state, and as choice behaviour.

12.4 Trust as a Psychological State

12.4.1 Existing Measures

The measurement of trust as a psychological state has been dominated by self inventory trust scales. In the literature reviewed, measuring trust as a psychological state most often involves participants providing ratings about a partner's trust-relevant qualities (e.g., competence, predictability).

An influential scale created by Rempel, Holmes and Zanna (1985) was designed to measure trust in close relationship dyads. This scale conceptualizes trust as the extent to which a specific other person is seen as predictable, dependable and worthy of faith. Examples of scale items include:

> Predictability - "*My partner is very unpredictable. I never know how he/she is going to act from one day to the next*" - negatively scored
>
> Dependability - "*Though times may change and the future is uncertain, I know my partner will always be ready and will to offer me strength and support*"

This scale has frequently been adapted for use in a wide range of settings, including the measurement of trust between organizations (e.g., Zaheer, McEvily and Perrone, 1998). A conceptually similar measure, adapted and properly validated within the context of small military teams, could be a valuable resource for measuring team trust.

Cummings and Bromiley (1996) have created a scale in order to measure trust both within and between organizations. Trust is conceptualized as relating to good faith efforts to meet commitments, honesty in negotiations, and not taking advantage of others. This scale assesses both cognitions and expectations about others (e.g., "*We think ____ takes advantage of our weaknesses*"), as the feelings related to trust (e.g., "*We feel that _____ negotiates with us honestly*"), intentions to engage in trusting behaviour (e.g., "*We intend to check _____'s actions to avoid being taken advantage of*"), and actual trusting behaviour (e.g., "*We monitor _____ closely so that they cannot take advantage of us.*"). The referent in each statement could be either an individual or an organization.

This scale is the only available scale that includes all four components of trust represented in the literature (i.e. cognitive, affective, willingness to trust and actual trust-related behaviour), and could easily be adapted to the domain of small teams. Certainly, in the longer term, using a scale as a measure of trust-related behaviour may not be the best alternative, but this format could be useful particularly at the early stages of research.

A measure of trust in specific relationships within an organization was created by McAllister (1995), and included both cognition-based trust (e.g., "*This person approaches his/her job with professionalism and dedication.*") and affect-based trust (e.g., "*We would both feel a sense of loss if one of us was transferred and we could no longer work together.*").

Rotter's Interpersonal Trust Scale (1980) has been widely used to measure generalized trust expectancies of others. This scale conceptualizes trust as "*a generalized expectancy held by an individual that the word, promise, or statement of another individual can be relied on*", and includes items such as "*parents usually can be relied on to keep their promises*". This scale is typically used as a measure of individual differences in propensity to trust. In the reviewed research, however, this scale was also used to measure trust in other teammates in a study of team mental models (Rentsch et al., 1998). This use of the Rotter measure seems inappropriate in light of the generalized form of trust that it measures. The Interpersonal Trust Scale was designed to measure trust in unfamiliar people. Measures of generalized propensity to trust should have been included with measures of actual teammate specific trust. As the interest in studying trust in small teams is trust in specific familiar others, this measure is not likely to be helpful. Moreover, apparent validity problems with this measure should also preclude it being used even to assess individual differences in trust (Omodei and McLennan, 2000).

Work by Omedei and McLennan (2000) examines the creation of a scale of mistrust/trust within dyadic relationships. This work proposes a mainly motivational definition of interpersonal mistrust, conceptualizing it as "*mistrust of the motives of others in situations involving one's well being.*" Each scale item includes a description of a situation and participants indicate their agreement with a related interpretation of the situation. For example, the following situational description "*You are having trouble with an automatic banking machine and the next person in the queue offers to help*" is matched with the interpretation "*He or she plans to read your secret number*".

Although the content of the scale items is obviously not relevant, the use of situational descriptions allows for the tailoring of items to the infantry team context. Scale items could include descriptions of trust-relevant situations most likely to be encountered by infantry teams. As structured, however, this questionnaire focuses too heavily on interpretations of others' behaviour, rather than expectations of others. A similar structure, however, could be adapted to assess trust-relevant attributions.

In order to measure trust within groups or teams, researchers have frequently opted for altering trust scales originally created to measure dyadic trust. McAllister's measure of dyadic trust was adapted to measure group trust by Dirks (1999) by changing the referent from specific others to groups or teams. Similar strategies have been employed by Jarvenpaa and Leidner (1999) and Porter and Lilly (1996). The major problem with this, of course, is that the validity and reliability have been established at a different level of analysis, and the validity or reliability may or may not hold when used to measure trust in a broader context.

The literature yielded only one measure of group trust, from Simons and Peterson (2000), who used five items, such as "*we are all certain we can fully trust each other*". Unfortunately, there is no obvious existing measure that could be used without considerable adaptation to measure trust in a small team context.

In order to measure trust within teams, it will be important to formulate and validate a measure that captures trust in team members as a psychological state. This measure should be used as a complement to data measuring the observable behaviours associated with trust.

It will be important to first clearly identify the dimensions of trust that are most relevant in the context of infantry teams. The existing empirical trust research does not speak directly to trust in teams, or to trust in a high-pressure military environment. It is important to ensure that the most meaningful dimensions of trust for infantry team members are determined empirically, rather than being assumed to be the same as for the university students that typically participate in trust experiments. This may require taking time with infantry teams in structured interviews, for example, to determine the factors that they believe most influence their judgements of trust in others. Alternatively, pilot studies could also be used to assess the most influential factors. These studies may include requiring infantry team members to judge the trustworthiness of a prospective team member, while varying the trust-relevant information presented about the individual (e.g., about the new soldier's competence or integrity).

Decisions will need to be made, however, about how best to conceptualize team trust. Is trust within a team best represented as the trust in each member of that team individually (combined to yield a "team" score), or is team trust best represented by a person's judgement of their trust in the team as a whole? At the start, it makes some sense to attempt to measure soldier's trust of other team members individually. If this measure can be shown to be a valid measure of trust in teams, then it would be possible to formulate a more efficient measure of team trust and compare how well the pilot global measure matches with the individualized measure. This decision may be determined to some extent by the experimental paradigms chosen.

Several other issues emerge from the literature as important considerations for the measurement of trust in teams:

First, as trust is inherently domain-specific, any measure of trust needs to be tailored to the domain under investigation, and should be validated within that domain. The failure of previous trust researchers to empirically develop and test their measurement tools before using them in empirical research is noted by theorists studying trust in varied areas (e.g., Currall and Judge, 1995; Jian, Bisantz and Drury, 2000).

Secondly, there is widespread agreement that trust scales should assess both the cognitive and the affective dimensions of trust as a psychological state (McAllister, 1995). A measure of trust in organizations (Cummings and Bromiley, 1996), for example, assesses both participants' cognitions and expectations about others (e.g., "*We think ____ does not mislead us*"), as well as the feelings related to trust (e.g., "*We feel that _____ negotiates with us honestly*").

Thirdly, although the majority of previous research efforts have focused on measuring the expectations and feelings associated with trust as a psychological state, there is increasing emphasis on the need to measure willingness to engage in trust-related behaviours (e.g., Doney, Cannon and Mullen, 1998; Mayer, Davis and Schoorman, 1995). Even a highly developed bond with another person does not always predict willingness to engage in trusting behaviour. A "willingness to

engage" measure may be useful in cases when it is too difficult to assess actual trusting behaviour. Currall and Judge (1995) argue that measuring participants' willingness to trust may be the next best option in these cases, as willingness to trust is the most proximal antecedent of actual trusting behaviour. Moreover, they argue that willingness to engage in a behaviour has been shown to be a relatively good predictor of actual behaviour and is more proximal to trusting behaviour than are social judgements related to trust (e.g., measures of a person's integrity).

Table 12.4.1 - Measures and Methods for Assessing Trust as a Psychological State

Trust	Positive expectancies	Trust-related expectancies	Participant ratings on predefined scales
	Positive feelings	Trust-related feelings	Participant ratings on predefined scales
	High willingness to trust	Willingness to trust	Participant ratings on predefined scales

12.4.2 Ability to Predict

One of the most important issues to explore in this research is the extent to which trust enables predictions about the behaviour of others. If trust is based on one's ability to predict others, one might expect that having an established basis of trust would enable teammates to better anticipate a trust partner's behaviour.

Similarly, trust is not just expectations about behaviour, but expectations about the motivations of other people. It is also important to explore whether teammates with an established basis of trust are better able to interpret their trust partners' motivations, for example, during the course of interactions.

Measures

Team mental models are typically viewed as comprised of models of team, task and resources (Wittenbaum, Stasser, Merry, 1996). Cannon-Bowers, Salas and Converse (1993) have further divided the "team" component to include both knowledge of team members (e.g., knowledge, skills, preferences), and knowledge of team interactions (e.g., role responsibilities). These components may represent an important part of the expectations that team members form about their trust partners. As Bryant et al. (2000) note, however, current team mental model research emphasizes knowledge of roles and procedures rather than more complex models of other team members. Although judgements of trust include expectations about roles, trust requires a much broader kind of knowledge about others, knowledge that also includes their values, as well as their motivations. The scope of team mental models would need to have a less constrained focus if used in trust research, in order to allow the expression of these broader forms of knowledge about other team members.

Methods

The primary methods for measuring team mental models are knowledge surveys and interview techniques. These methods might include probed protocol analysis, structural assessment, and explorations of shared expectations. Combined with actual task simulations, gathering data with these methods would allow for matching how well teammates' predictions about each other conform to actual behaviour and motivation.

Table 12.4.2 – Measures and Methods for Assessing Ability to Predict

Ability to predict / Shared team mental models	Model of other person accurate	Predictions about behaviours	Compare predictions to actual behaviour
	Model of other person accurate	Predictions about motivations	Compare predictions to actual motivations
	Knowledge of other team members' roles	Identification of team roles	Rate descriptions of other roles and compare overlap
	Knowledge of other team members' skills, preferences	Identification of skills etc.	Rate skills and preferences and compare overlap

12.5 Behavioural Indicators of Trust

The existing literature suggests that trust impacts on several key behaviours. In infantry teams, then, one might expect for the following behaviours to be associated with team trust.

12.5.1 Defensive monitoring

Trust is frequently described as a control mechanism, and rests on trust partners' implicit and explicit agreements to act both predictably and in each other's best interests. When trust between partners is low, trust theorists have argued that team members will be more likely to observe the activities and performance of other team members (McAllister, 1995). This defensive monitoring occurs as a defense against breeches of agreements, and the potentially negative consequences that might occur if trust partners do not conform to our expectations and predictions.

Measures

In McAllister (1995), trust is measured using a self-report scale that includes items such as "*I find that this person is not the sort of worker that I need to monitor closely*". In the proposed research, a behavioural measure of defensive monitoring could also be used. Defensive monitoring among team members could be measured as the number of glances toward a partner during common tasks, or as the number of communications related to monitoring the actions or future actions of one's teammate.

Methods

The proposed method for measuring defensive monitoring is the analysis of an audio-visual log by trained observers. This form of analysis provides observers with the time necessary to decode the information and to make decisions concerning the occurrence of defensive monitoring.

Table 12.5.1 – Measures and Methods for Assessing Defensive Monitoring

Defensive monitoring	Minimal defensive monitoring	Number of glances toward partner	Observer ratings
		# of defensive questions and requests for clarification	Analysis of communication log

12.5.2 Cooperation

The level of trust in a relationship also positively affects the level of cooperation likely to exist. Trust theorists have argued that trust in a relationship increases cooperation because decisions about whether to cooperate are typically based on expectations that others will do the same. As trust increases the ability to predict the behaviour and motivations of others, established trust in another person allows one to know whether or not cooperation is likely to yield a reciprocal investment from another person. This rather cognitive account of the relationship has an affective associate as well. Trust may also improve cooperation because the emotional bond that develops in coming to trust others provides reassurance that others will not harm us. This security makes it safer to work interdependently. As such, trust also makes cooperation more likely.

Measures

Within the current trust literature, the relationship between trust and cooperation has been studied most frequently in the realm of game simulations (e.g., the Prisoner's Dilemma Game). This sort of paradigm has increasingly been argued to be an inadequate means to understand trust in a social context (Kramer, 1999). A more recent study of trust and cooperation (Dirks, 1999) has used incidents of helping behaviour on a block building task as a behavioural indicator of trust.

In infantry teams, it is proposed that anticipatory communications would be an important indicator of cooperation. Members of high trust teams are likely to be better able to anticipate the information needs of their fellow teammates. Such communications may include both discrete verbal behaviours (e.g., spoken warnings of danger ahead), as well as non-verbal forms of communication (e.g., pointing out obstacles in the terrain). Moreover, high trust teams are also likely to respond faster to requests for information, and to anticipate more than they are asked (i.e. have higher anticipation ratios). Other measures might also include the levels of perceived cooperation among team members, as indicated on retrospective self-report inventories.

Methods

The proposed method for measuring cooperation is the analysis of an audio-visual log by trained observers. This form of analysis would allow the time necessary to decode the information and to make decisions about anticipatory communication.

Table 12.5.2 – Measures and Methods for Assessing Cooperation

Cooperation	High anticipation of information needs	Anticipation ratio	Analysis of audio/video log
		Transfer of unrequested information	Analysis of audio/video log Team member ratings Observer ratings
		Timeliness of submission in relation to others' needs	Analysis of audio/video log Team member ratings Observer ratings
	High perceived cooperation	Cooperation scale	Participant ratings

12.5.3 Communication

In the previous section, we argued that trust may enable higher levels of anticipatory communication. Theorists have argued that open and honest communication within interpersonal relationships promotes trust (Lewicki and Bunker, 1996), as it provides a means by which people are able to share values, attitudes, goals and common life experiences. Trust also improves communication by freeing up the transmission of information and by promoting a more open environment that enables communication.

As teams with high levels of trust would also be expected to have more emotional bonds, it may be the case that communication efforts would be directed not only at more instrumental forms of anticipatory communication, but also toward providing mutual support and reassurance of other teammates.

Measures

Measures of the frequency and length of supportive communications are most relevant. One might expect that high trust teams will use more frequent and more elaborated statements of support and encouragement.

Methods

The main method for measuring supportive communication is the analysis of a video or audio log of team communication. A taped log allows observers the time needed to identify the key components of communication.

Table 12.5.3 – Measures and Methods for Assessing Communication

Communication	Supportive communication	Frequency of communication	Analysis of communication log
		Length of communication	Analysis of communication log

12.5.4 Conflict

Higher levels of trust within relationships are associated with lower levels of conflict (Porter and Lilly, 1996). Trust lowers conflict by changing the attributions that are made when problems arise.

When conflicts or differences in opinions arise, people who trust each other are more likely construe the conflict as a more limited form of task conflict, rather than attribute broader sinister motives to their partner (Simons and Peterson, 2000). Trust may also lower conflict as problems are interpreted are more likely to be interpreted through the lens of shared values.

Measures

In the literature reviewed, conflict has been measured using self-report questionnaires (e.g., Simon and Peterson, 2000), and this kind of measure could also be used in team trust research. Levels of conflict could also be measured using the content of communications (attribution of conflict as either task-related or relationship related). Another approach would be measuring actual conflict behaviour as it occurs in the course of team tasks. Conflict could be measured using observable conflict behaviours (e.g., physical gestures). Perceived conflict between teammates would also be a relevant indicator of conflict.

Methods

The main method for measuring conflict is the analysis on a video or audio log of communication between team members, as well as participant ratings about the conflict. Observable conflict behaviours could also be measured, as well as perceived conflict using self-report scales.

Table 12.5.4 – Measures and Methods for Assessing Conflict

Conflict	Minimal conflict-related communications	Conflict-related communication	Analysis of A/V log Participant ratings
	Minimal conflict behaviours	Physical gestures	Analysis of AV log
	Minimal perceived conflict	Conflict scale	Participant ratings

12.6 Additional Factors Affecting Trust

Many other factors are also likely to impact on trust in small teams. Issues such as shared goals, shared values, and identification with other team members or with the groups to which they belong will also influence trust. For the purposes of the current research, it will be important to narrow the focus to a limited number of factors, but several factors should be considered.

12.6.1 Shared Goals

Shared goals play a role in trust, as they provide evidence of shared values (Jones and George, 1998), and may help to predict the future behaviour of others. In the context of small military teams, goals related to the mission or operation at hand would likely play a key role in trust. When team members believe and feel that they are working on the same goal, they may confer more trust on other team members.

Measures

Understanding the degree to which team members' goals are shared can be facilitated by assessing the extent to which teammates' mental models of the mission are common. The completion of assigned missions represents a goal which should be shared by all team members. Mental models

could assess the content of the model relating to the mission and its goals, and the organization of the knowledge.

Methods

Mental models are typically assessed using knowledge surveys and interview techniques. Statistical analysis would be used to measure the degree of similarity in content and organization of knowledge.

Table 12.6.1 – Measures and Methods for Assessing Shared Goals

Shared mental models of mission	Mission model accurate and complete	Accuracy and completeness of mission knowledge	Compare overlap among team members

12.6.2 Shared Values

Theorists have argued that peoples' personal values may play a role in their interactions with others and influence the extent to which they confer trust on others (Doney et al., 1998). Values may influence the development of trust by providing standards by which to judge whether or not another person is likely to be trustworthy (Jones and George, 1998). Shared values and norms may also influence the attributes that are seen as most important in understanding others (Porter, 1997). Infantry teams with a high level of shared values are likely to show higher levels of trust than teams with fewer shared values.

Measures and Methods

Values are typically measured using participant ratings on predefined value scales.

Table 12.6.2 – Measures and Methods for Assessing Shared Values

Shared values	High similarity in values	Ratings along predefined value and attitude scales	Participant ratings

12.6.3 Identification

Identification promotes the emergence of both person-based (Lewicki and Bunker, 1996) and category-based trust (Kramer, Brewer and Hanna, 1996). People who see specific others as members of a common group are more likely to trust them for several different reasons (e.g., ingroup bias). This suggests that understanding trust within infantry teams will be facilitated by exploring the degree to which team members see themselves as members of shared groups.

Measures

Identification is measured in many different ways in the available literature. It can, for example, be measured through levels of ingroup bias. Identification has also been understood in terms of self-other differentiation. Low levels of differentiation between oneself and another person, of course, are indicative of high levels of identification. In the social psychological literature, identification with members of social groups is frequently manipulated, and the impact of this identity shift on

judgements about self or others is measured using various scales (e.g., attitudes). Identification is frequently measured by testing the salience and activation of specific social stereotypes. In this case, identification can be measured using reaction time studies, in which participants respond to group-relevant words after a group identity has been primed. Facilitated reactions to group-relevant words indicate that a group identity rather than a personal identity is activated.

Methods

Ingroup bias scales, attitude scales about members of other groups, and reaction time studies of identification could be meaningfully employed in studying trust within infantry teams. The methods chosen, however, vary widely in their ease of implementation. The resources available and the question of interest will guide what methods are used. _

Table 12.6.3 – Measures and Methods for Assessing Identification

Group identification	Salience of group identity	Ingroup bias measures Ratings on scales (e.g., attitude, self-other differentiation) Stereotype activation measures	Participant ratings and responses to salient identities

12.6.4 Trust as an Individual Difference

The reviewed literature suggests that individuals differ in their propensity to trust others. These individual differences are also likely to play a role in infantry team trust. It is important to control for preexisting variations in propensity to trust.

Measures

In the literature reviewed, propensity to trust has been measured using Rotter's Interpersonal Trust Scale (1967). Due to apparent problems with validity, however, this scale should not be used (Omedei and McLennan, 2000). A scale with more relevant items could be created. These measures, though, should to be used to reduce error variance rather than as manipulated variables. In order to further capture individual differences in trust, it might also be helpful to measure participant's preexisting trust histories.

Methods

Participant ratings on propensity to trust scales and structured interviews respectively could be used to assess individual differences in trust and past trust histories.

Table 12.6.4 – Measures and Methods for Assessing Individual Differences in Trust

Individual differences in trust	High propensity to trust	Propensity to trust	Participant ratings Propensity to trust scale
	Positive trust histories	Past trust histories	Structured interviews

12.6.5 Team Factors

Team factors such as cohesion, morale, and team members' commitment to the team are also likely to affect levels of trust in small teams. These factors could be measured using self-report scales.

Table 12.6.5 – Measures and Methods for Assessing Team Factors

Team Cohesion	Strong team cohesion	Level of cohesion	Participant ratings
Team Morale	High team morale	Level of morale	Participant ratings
Commitment to the team	Strong commitment to team	Level of commitment to team	Participant ratings

Chapter 13 – Proposed Research Program

13.1 Overview

The goal of this literature review was to identify critical issues in the area of trust within small teams, and to identify the effects of trust on team performance. This report also addresses issues concerning the development, maintenance, and erosion of trust within small teams as well as the factors that impact on team trust. The relationship between trust and Common Intent is also analyzed. Most importantly, this review examines research strategies and research questions that could be used to study trust in teams in the context of the SIREQ project.

At a broader level, however, we suggest that this research offers a unique opportunity to take a more global view of the issue of trust in teams. Existing models of person-based trust and theories about category-based trust present compelling portrayals of how trust develops, but trust models as a whole have not yet been empirically validated. There may be considerable benefit in working to establish these models more firmly in the context of military teams. Our review also suggests that there are several overlapping theoretical models that are relevant to the issue of trust in teams. Existing work in the area of team mental models, for example, has helped us to understand how shared expectations and models of each other help teammates to coordinate their activities. This line of research, combined with the perspective of trust researchers, would seem to provide a rich area of future research and theory in understanding how people build their predictions of other people. We argue that the information gained in the process of developing trust in another person is perhaps one part of a more global mental model of that person. Although beyond the scope of the current review, we argue that bringing these two lines of theory and research together may further trust research, as well as bringing a more social and holistic perspective to the mental model research. We advocate that the current research program may be well served by adopting a broader perspective on trust. Such a perspective would provide a strong context within which to understand trust not just within small teams, but within military teams with varying levels of diversity (e.g., multinational operations).

Before embarking on the experimental research program described in this review, however, we argue that an approach which is initially more broad and descriptive may be valuable. Such an approach may employ focus groups, surveys and questionnaires in order to explore soldiers' general perceptions about trust and about the groups of people that they trust. Soldiers would also have the opportunity to discuss their levels of trust in other people (e.g., those with different military ranks), and to explore whether they have the same standards of trust for all people, or different standards for people belonging to different groups. Only after trust has been explored at these broad levels would more focused and controlled research work toward understanding trust within actual, intact military teams.

It should also be noted that working to understand trust within intact military teams gives rise to several important ethical challenges. It is one thing, we argue, to ask about people's global evaluations of other people, and of the degree to which other people are trusted. To ask soldiers about the extent to which they trust specific fellow teammates, however, has the potential to be intrusive and to damage the existing relationships within intact teams. It may be difficult to get honest answers about judgements of trust in this kind of setting. Moreover, for an outsider to ask a

group of people who have worked closely together for several months and/or years and who have built a team dynamic to reveal their true thoughts about other team members' motivations and capabilities has the potential to disturb those relationships. Even if the insights are revealed in confidence, other team members will know that such confidences have been requested, and it will raise doubts. There is no simple solution to this problem, but it is important that future trust in small team researchers are cognizant of this ethical issue, and to work to mitigate the potential for negative impacts on team dynamics.

We also argue that judgements of trustworthiness (and the likelihood of trusting choice behaviour) should be viewed as relative rather than absolute. Although noted in the reviewed literature, previous research efforts to study trust do not appear to have attended adequately to the fact that trust is extremely context-dependent. Clearly, there are some relationships in which we make a global and relatively stable judgement that another person is trustworthy (e.g., spouses etc.). We argue, however, that this is not typically the case, but that trust judgements are also heavily influenced by factors such as the difficulty of the task for which we rely on others, or on the context within which trust decisions occur. One may trust a surgeon to perform delicate surgery, but will not necessarily trust his advice about the stock market. We argue that, in military teams, trust in other teammates is particularly likely to be relative to the task and the context because the cost of misplaced trust can be extremely serious. A teammate may have a great deal of trust in another team member's ability to overpower an enemy in hand to hand combat, but very little trust in his ability to disarm an explosive, as these tasks require very different skill sets. At the same time, trust is also likely to be influenced by the mission. The extent to which a soldier confers trust on other soldiers will vary depending on the demands of the mission. In particularly stressful times, for example, one may need to loosen the criteria for trusting others as a way of coping, whereas one might be more hesitant to confer trust in less dangerous missions. A soldier may trust his fellow teammates in missions requiring highly developed negotiation skills, but not in combat missions which require more practical technical skills (e.g., use of weaponry). We see the trust in teams research as requiring simultaneous consideration of the person, the task, and the larger context in which the decision to trust occurs.

In military sit ons, we argue that judgements of trust are likely to be dependent on seeing others as competent, enevolent and as having integrity. Certainly, there are many possible dimensions that will influence trust in another person within military settings (e.g., shared values and goals, similarity etc.). We suggest, though, that competence, benevolence and integrity present a logical starting point as these factors have been frequently emphasized in the existing trust literature as well as the military literature. We advocate that using these qualities (or whatever qualities empirically shown to be most appropriate) to develop trust "profiles" may be an important first step of this research. Having each teammate rate themselves and every member of the team on the extent to which they use competence, benevolence, and integrity in making their judgements of others would provide a rich set of information that would be used in several ways. The relative position of these three dimensions within the team would provide information about what qualities are seen as most influential in judging new teammates. Ratings of how competent, benevolent and honourable teammates see themselves and others could also provide a way to predict team process and performance in operations or simulations (e.g., degree of cooperation, risk-taking, actual achievement etc.). This kind of profile could also be used to show changes over time within teams, perhaps as the result of trust-relevant simulations.

Within the military, however, it is not enough to consider only the impact of conventional person-based factors, as issues such as one's role or military rank are also likely to play a prominent role in judgements of trust. Again, in any relationship, there are also numerous category-based factors (e.g., ethnicity) that may impact on judgements of trust and trust-related behaviour. As a starting point, however, we argue that military rank is likely to be an influential factor and should be considered at the early stages of research. The next section addresses several specific questions that may be asked in the context of the current research.

13.2 Primary Focus of Research

Trust is a complex topic that presents many possible courses of study. We believe that the key research focus for the issue of trust in the context of small infantry teams should revolve around three main questions, as described below:

What is the nature of trust in small infantry teams?

It is important to understand how trust in small teams is similar in structure and function to trust in other settings. The extent to which trust in infantry teams is primarily driven by cognitive or affective components, as well as the relevance of distinctions such as person-based and category-based trust, for example, are of importance to understanding team trust. In order to understand the impacts of trust on performance, for example, it will also be important to understand not just the behavioural associates of trust, but the psychological state of the individual making trust judgements. As noted earlier, trust in infantry teams should not be assumed to have exactly the same quality as trust in other settings. The dimensions that most influence judgements of trust, for example, may be very different. It is important to establish the commonalities and the differences in trust between infantry teams, and trust as represented in the current literature.

What factors develop and maintain trust within teams?

At a very practical level, it is important to understand how best to build trust and sustain trust within infantry teams. This will require understanding the factors that promote or inhibit the development of trust within infantry teams. The existing trust literature suggests that many factors are likely to influence trust development. Shared values and goals, for example, are posited to influence the development of trust. It is important to first understand whether similar factors influence trust in infantry settings. Then, it will be important to try to understand how trust, once developed, can be sustained.

As noted throughout this report, turnover would appear to present the most obvious challenge to trust in small infantry teams. It is critical to understand how turnover impacts in order to be able to adequately mitigate these effects. The process by which teams "incorporate" new team members presents one possible line of research. Do team members actively work to assess the trustworthiness of their new team members, by presenting challenges? If so, what qualities do they look for? Are teams with a history of high team trust any better at knowing what to look for than teams with low trust?

An important aspect of this research will be to explore the previously uncharted waters of how physical and psychological stress is likely to impact on trust. Increased knowledge about the impacts of information load, time pressure, fatigue, sleep deprivation etc. on trust will be key to understanding how to support trust within infantry teams of the future.

As infantry teams are a small part of an increasingly diverse workforce, it is likely that diversity will become an even greater challenge to trust in the future. It is important to also explore the impact of various forms of diversity (e.g., cultural, sex), and to also explore ways to mitigate the potentially negative effects of diversity.

It is also important to explore how trust is best maintained within infantry teams. The available research suggests that trust violations pose a serious threat to trust within teams. It is important to understand what kinds of violations are most damaging to trust and how the negative impacts of these violations can be best mitigated in a highly interdependent environment.

The proposed research program should also explore the impact of a true team environment on trust. The available trust literature focuses on trust in dyadic relationships and in groups of unfamiliar people. It is critical to broaden this focus in order to understand the nature of trust in teams.

Does trust improve team process and performance?

As ensuring the maximal performance of infantry teams is the best way to ensure both their safety and the successful completion of their missions, the issue of whether trust improves how teams work together and whether trust facilitates more effective and efficient team performance is an important focus of this research. The reviewed research suggests that teams with high levels of trust may display less defensive monitoring, less conflict, and higher levels of cooperation. Moreover, performance of shared tasks may also be accomplished with more speed and accuracy.

If trust does impact on team process and performance, it is critical to understand the mechanisms by which this occurs. The existing literature suggests that trust is based on expectancies and on the ability to make confident predictions about others. It is unclear, however, what kinds of expectancies are most likely to facilitate enhanced performance. Moreover, it is also not clear from the existing research whether trust improves performance directly or indirectly. The goal of this aspect of the research, of course, is to be able to predict whether measured increases in trust will enable accurate predictions of performance improvements within teams.

It is also argued, however, that it is not sufficient to understand how trust impacts on behaviours such as cooperation, but that gaining a knowledge of how trust affects prediction on a more general level is also critical. In an infantry team setting, the extent to which a team member is able to predict his partner's behaviour is likely to be related to the level of cooperation that he shows his partner. At the same time, however, team members do not necessarily always respond to all of their predictions. Measuring only cooperation will only provide knowledge about the predictions that were associated with behaviour. The ability to predict a partner's motivations as well as behaviours is also an important part of trust. This issue should also be explored in the current research.

An important aspect of this work will be exploring the extent to which trust within infantry teams influences choices that are made as team members work together. One might expect, for example, that teams with high levels of trust may be more inclined to choose more risky courses of action because they have confident predictions about their team members' abilities. In short, trust may enable team members to take more chances because they believe in their teammate's ability and motivation to "watch their backs".

Although this issue has received little attention in existing trust research, it is also important to explore the potential dangers of trust within teams. At a theoretical level, trust scholars have argued that established trust can lead to biased information processing, and perhaps even to the dismissal of

information that should be attended to (Kramer, Brewer, Hanna, 1996). This issue needs to be empirically investigated further, as it has extremely serious implications in military environments.

The remainder of this chapter outlines the features of research program, proposes a research approach with a prototype of a possible study, and offers research questions that might be addressed in the study of trust within infantry teams.

13.3 Features of a Research Program

13.3.1 Identifying Relevant Contexts

Team-based. The identified focus of this research is the small infantry team. Such teams must work cooperatively to achieve the goals delegated to them by command. Considering small teams as the unit of analysis in studying trust rather than dyadic relationships or large collective settings is somewhat unique in trust research. As noted earlier, this team focus raises issues of how exactly trust within small teams should be conceptualized.

Although the focus needs to be at the team level, however, it is important to note, that in some cases, it is impossible to truly understand trust by detaching the team from the larger military environment of which it is a part. This is particularly crucial in light of the distinction between person-based and category-based trust. The trust that exists within any relationship is, at least potentially, a product not only of the interactions and perceived trustworthiness of the actors, but also a product of the trust-relevant categories that influence the exchange, as well of social identification.

Whether or not these distinctions are relevant, and whether they need to be addressed in designing the team trust research, however, depends on the question that is being asked. If the question relates to whether or not trust impacts on team performance, the issue of whether the trust exhibited in a fellow team member during a scenario is person-based or category-based trust may not relevant. On the other hand, if the research question concerns the factors likely to impact on trust within a specific team relationship, or on how to best build trust within teams who are geographically distributed, the issues of social categorization and group identification may be very important to consider.

Mission-based. Trust in small teams should be explored in the context of a team's missions. An important aspect of this research will be anticipating the different challenges to trust presented to soldiers during the course of missions. The extent to which a mission, for example, promotes the sharing of values may influence the issues of trust that emerge. Humanitarian efforts, for example, may give rise to unique issues of trust as soldiers struggle to cope with their own and imposed moral imperatives. Missions that are conducted with high physical and psychological pressure may also challenge the emergence of person-based trust. It is important to systematically vary mission types in order to study the impact of different kinds of missions on trust.

Organization-based. Although focusing within infantry teams, it is clear that trust is also subject to influences from the military structure within which infantry teams functions. It may be important to understand trust within the military system as a whole in order to truly understand the trust within military teams. The extent to which soldiers trust in the ability and motivation of the military system as a whole to provide for their needs (and for their families' needs if they are unable to provide for their families in the long term) is of critical importance. Moreover, the degree to which

infantry teams confer trust on new members will depend on the extent to which they share a common group membership. One of the most salient groups to which they both belong is the military system as a whole. As such, some degree of focus should also be placed on the organizational level.

13.3.2 Methodological Issues

It is critical that certain control conditions be incorporated into any research program. For the study of team trust, the following three issues are seen as the most important:

- *Team History*. Personal interaction is an important determinant of trust. In order to study trust in teams, team history will be an important control variable. In comparing established work teams, for example, it will be important to control for the length of time that team members have been together, and to have some sense of their trust histories as a team. Prior team history can also be manipulated in order to compare teams with long histories vs. short histories, for example, in order to show differences in the dimensions used to judge trustworthiness, and in the handling of trust violations.
- *Team Diversity*. The reviewed literature suggests that high levels of team diversity may adversely affect trust. Team diversity may take many forms, including differences in participant backgrounds, culture, ethnicity, education and training. Participants need to be matched on the dimensions most relevant to the target population.

  Within small teams, diversity of teammates is also likely to impact on trust. In studying the development of trust in a task simulation, for example, a participant's values and/or cultural background may play a key role in how trust progresses. It will be important to either control for diversity, or to systematically use such differences to test associated hypotheses.
- *Experimental Tasks*. Experimental tasks and mission scenarios also need to be carefully planned. It is important that the social context in which trust occurs is represented in the experimental tasks as closely as possible. At the same time, however, it is also important to ensure that the experimental tasks also provide a sufficient amount of rigour in order to produce valid results. As previous trust research has shown, this is not an easy balance to find.

  Conventional trust develops over time and rests on the opportunity for interactions. It is critical that at least some parts of the research program employ a longitudinal approach and explore the gradual accumulation of trust over repeated interactions. As infantry teams face considerable amounts of turnover, this issue more than any other that places infantry teams at risk of not developing trust.

13.4 Proposed Research Approach

The next section defines the steps of a research program that could be used to trust in infantry teams.

Establish mission types of interest. Infantry teams are active in many different types of operations, including war and Operations Other Than War (OOTW). Consideration must be given to the types of operations to be studied in the research project. This decision will be determined, in

part, by the research questions to be explored. Simulated conventional combat operations, for example, provide ideal settings within which to study issues of how physical and psychological stressors are likely to impact on trust development and maintenance, and to explore how trust impacts on team performance. Operations Other Than War, on the other hand, provide an ideal opportunity to study the impact of values and attributions on trust development.

Although the proposed research focuses on infantry teams, in order to facilitate future research, it is important that the research approach can be generalized to operations with higher levels of team diversity (e.g., large multinational teams engaged in Operations Other Than War) to the fullest extent possible.

Establish command levels of interest. The proposed research will be conducted as a part of the SIREQ project. As this project's main focus is within infantry teams, varying command levels will likely not come into play.

In designing the current research, however, it will be important consider the possibility that future research may require more complex command levels and, to the greatest degree possible, to structure the current research to ensure future flexibility.

Establish a mission context (scenario). It is important to decide on a scenario or a mission context, that will define the goals of the mission, the resources available to the team and the environment in which the mission will occur. Decisions about mission contexts for any given study will obviously be determined by the questions that the research addresses.

An important aspect of this research will be anticipating the different challenges to trust presented to soldiers during the course of missions. The extent to which a mission, for example, promotes the sharing of values may influence the issues of trust that emerge. Humanitarian efforts, for example, may give rise to unique issues of trust as soldiers struggle to cope with their own and imposed moral imperatives. Missions that are conducted with high physical and psychological pressure may also challenge the emergence of conventional forms of trust. The form of trust that is of most interest should determine the kind of missions represented in the research.

Establish the relevant dimensions of team diversity. Infantry teams, of course, may have many different aspects of diversity represented within them. In studies of team trust, the most important team diversity dimensions at any given point in time will vary depending on the research questions being addressed. In exploring the impact of competence on judgements of trustworthiness, for example, a team member's training and experience is likely to play more of a role in trust decisions than would shared values. It is critical to understand what elements of team diversity are likely to be most influential in considering specific research questions. As diversity has yet to be considered extensively in trust research, these decisions will need to be guided by a survey of the available literature on diversity.

Establish study sampling frame. The population from which participants are chosen during the course of the research program will likely shift as the research program proceeds. Early studies seeking to establish basic principles will allow for less constrained samples than later studies that, for example, work to establish the effects of trust on actual infantry team performance.

Establish an appropriate simulation environment. Trust can be meaningfully studied in many different ways. These include somewhat more artificial laboratory studies. Such studies may involve, for example, presenting hypothetical scenarios relevant to the problems likely to be faced by infantry teams, and having both high and low trust teams work together to formulate solutions to

the problems. This, of course, could address issues of how differential trust between teams impacts on communication and conflict as well as team decision-making abilities.

Such studies could also include software based task simulation studies in which participants who have never met are given trust-relevant information about other team members and are then asked to work together on a risky task. Varying the kind of information presented about the other players (e.g., other player's demographic information, most important values espoused by the other player, the player's record of service or training) could be used to explore both ratings of trust and the willingness to place trust in the team member given varying kinds of information about the person. This might enable a better understanding of the trust-relevant dimensions that are most important in infantry teams. An extension of this kind of simulation may involve manipulating the salient identity of the target team member to cultivate identification with the other player (as both members of the military system) and exploring the impact of this identity shift on trusting behaviour. If identification with another person does promote trust, one would expect higher levels of trust-related behaviour, such as cooperation and lowered defensive monitoring etc. More realistic simulations such as those available in military simulation centres would be especially helpful in exploring the impact of trust on performance.

Determining what form of simulation to use has important implications for the validity of the results to be gained in each of these settings. The various forms of simulation noted vary widely in terms of their fidelity to trust in real life infantry situations, and have both advantages and disadvantages. Low fidelity simulations, such as those occurring in strictly controlled experiments, can be used with relatively little effort and offer the opportunity for clear and concise data measurement. Whether the results are valid, however, depends on how well the simulation truly captures trust. Simulations with a higher level of fidelity require more elaborate preparation and resources, and getting data in more realistic settings tends to be harder. Higher fidelity simulations, however, present fewer challenges to validity. In studying trust, the issue of how well simulations of trust-relevant situations mirror trust globally is an important issue to consider in terms of both validity and ease of implementation.

13.5 Research Questions

As noted earlier, we believe that research exploring trust in small teams should focus on three key questions. There are, of course, many possible questions that could be asked in the context of this research. The reviewed literature, however, shows convergence on many key questions about trust, some of which have already been explored outside of the infantry team domain. Recognizing that the current trust literature is incomplete, trust theorists have also indicated the need for answers about many other questions before trust as the object of scientific study is adequately understood. Both of these kinds of questions are seen as potentially relevant for the study of trust in small teams. As such, we believe that the following issues represent the most pressing challenges to understanding trust in small teams, and to applying this knowledge to the small team setting.

Table 13.1 - Determine the nature of trust in small teams.

Research Issue	Example Research Questions
What is the structure of trust in small teams?	Is trust in small teams determined by both cognitve and affective factors? Can person-based and category-based trust be distinguished in small teams? Is trust within teams best represented as a single bipolar trust/distrust construct or as trust and distrust separately?
What function does trust in small teams serve?	Does trust enable prediction of teammates' behaviours? Does trust promote attributions of teammates' motivations? Does trust promote affective bonds between team members? Does trust reduce uncertainty, risk, and vulnerability within team relationships?

Table 13.2 - Determine the factors that develop and maintain team trust.

Research Issue	Example Research Questions
Do individual differences affect trust in teams?	Do individual differences in propensity to trust affect trust in teams?
Do values and attitudes affect trust in teams?	Do shared values promote trust in teams?
What factors affect the development and maintenance of trust?	Do competence, benevolence and integrity promote trust? Does open communication promote trust? Does demographic similarity promote trust? Do shared goals promote trust? Does categorization promote trust? Does group identification promote trust? Do attribution processes promote trust? Do roles and rules promote trust? What factors predict the erosion of trust? What kinds of trust violations are most damaging to team trust? How does leadership impact on trust? Are hierarchical and lateral trust the same?
How does turnover in small teams affect trust?	How does turnover impact? How do high trust vs. low trust team manage turnover? How do teams work to incorporate new members? How can the negative impact of turnover be mitigated?
What team factors affect trust?	How does team diversity affect trust? (e.g., diversity in backgrounds, roles, cultures) How does geographic dispersion affect trust? Is trust different in fixed vs. ad-hoc teams? Is trust in equal status relationships different from trust in hierarchical relationships?
What physical and psychological stressors affect trust?	e.g. Time pressure, high information loads, ambiguity, fatigue, extreme temperatures etc.
How do these factors influence trust?	By what mechanisms do these factors promote trust (e.g., mental models?)

Table 13.3 - Determine how team trust impacts on team performance.

Research Issue	Example Research Questions
How is defensive monitoring affected by team trust?	Do high trust teams use defensive monitoring less?
How is cooperation affected by team trust?	Do high trust teams exhibit more cooperative behaviours? Do high trust teams better anticipate other team members' needs? Do high trust team members perceive others to be more cooperative?
How is communication affected by team trust?	Do high trust teams use less task-related communication? Do high trust teams use more support-related communication?
How is conflict affected by team trust?	Do high trust teams use less conflict-related communication? Do high trust teams make less personal attributions about task-related conflict?
How is willingness to engage in risk affected by team trust?	Do high trust team members make more risky choices?
How is ability to predict other team members affected by trust?	Do high trust team members make better predictions about other team members' behaviour and motivations?
How is team performance affected by team trust?	Do high trust teams show improved performance on shared tasks?
How does team performance impact on trust in teams?	Does high team performance promote the development / maintenance of trust? By what mechanisms does trust improve team performance (e.g., shared mental models?)
Can team performance be predicted through a knowledge of trust?	Can measured increases in trust be shown to impact incrementally on team performance?

13.6 Prototypical Study

Purpose – To explore the impact of trust on team performance.

Outline - A team performance scenario could be conducted in a military training facility. The scenario would have three distinct stages, representing pre-assessment, simulation and post-assessment. The task presented to several sets of two team members at a time, is to work together to clear a room of both bystanders and enemies while in enemy territory.

Method – In this scenario, a squad's task is to clear a room in an unknown building in enemy territory. The goal of the mission is to enter, clear and secure the room by "killing, capturing or forcing the withdrawal of enemy forces in the room" with minimal loss of life for the civilians in the room. Two team members must work together to accomplish this goal.

This experiment can be conceptualized as having three stages. Before the task-related stage of the simulation begins, a number of dimensions relevant to trust would be measured. These dimensions include the pre-existing levels of trust between team members, including both cognition-based and affect-based judgements of the trustworthiness of the other team member, as well as the willingness to trust this person. Many other dimensions including demographic similarity, individual differences in trust, values and goals would also be measured in order to gather information about the most important factors in team trust. In addition, knowledge surveys exploring team member's expectations about their partner's performance and motivations would also be completed by team members, as well as their predictions of success at the task. Observers would also rate the success of the mission in terms of task effectiveness and task efficiency, as well as objective measures (e.g., time to task completion).

After these assessments, the simulation then becomes active, and the team members work together to begin their task of clearing the room. As the team members proceed to the first designated checkpoint, ongoing measures of coordination, communication, defensive monitoring and conflict are taken, using the measures and methods described earlier. At the checkpoint, the simulation would be paused and freeze probe techniques used to assess the degree to which team members are conforming to each other's prior expectations. As well, updated predictions about the probable success of the task are also taken. The simulation resumes, and similar ongoing measures of team process and performance are taken.

Once the task is complete or criteria time reached, measures of trust in the other person would again be taken, as well as post scenario study of how well teammates were able to predict their partner's behaviours during the task and the success of the "mission". Successive iterations of this scenario would indicate the changes in trust over the course of time, and as the result of successful task completion. As a whole, then, analyses on the data would explore changes in trust and related indicators over the course of the simulation.

Additional Variations – Many different variations of this simulation are possible. In addition to trust between two pre-existing team members, it would also be possible to explore the impact of trust on the performance of team members who do not know each other. Differences between the processes and performance of high and low trust teams could also be explored.

A very important variation would be scenarios that impose the unforeseen circumstances encountered in real infantry settings. In the case of clearing a room, for example, this may involve

a sudden crisis with one of the civilians. Team trust, of course, is predicated not only on predicting the behaviour and but also the motivation to ensure the interests of one's partner despite unexpected circumstances.

Possible Hypotheses – Possible hypotheses might include:

High trust teams will perform the task with more speed and accuracy

High trust teams will be better able to predict each other's actions

High trust teams will show more cooperation, less defensive monitoring and conflict

High trust teams will be better able to adjust to unforeseen circumstances with less disruption to task completion

Anticipated Lessons Learned – This study provides a good test of the relationship between trust and performance. High trust teams are expected to show enhanced team performance and task completion, as well as better team processes (e.g., cooperation). This study also explores the role of history in judgements of team trust and trust-related behaviours.

Limitations – This study requires intricate staging and resources. The freeze probe disrupts the flow of the mission.

Chapter 14 – References

This section contains references for articles obtained and reviewed. See Annex A for secondary references, i.e. those identified in the primary references.

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ANNEX A:

Secondary References

Annex A – Secondary References

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14 ABSTRACT

(U) This report reviews research literature pertaining to trust in small teams. In particular, the review relates scientific and military literature to trust, identifies factors impacting on the development and maintenance of trust, explores measures and methodologies, and generates recommendations for a research program to study trust in small teams. Based on the review, the report identifies an important distinction between person-based and category-based trust and argues that both forms of trust are likely to play a critical role in military teams. The existing literature on trust and performance is reviewed, and current gaps in the literature are identified. We also argue that trust and Common Intent appear to be linked by a mutual association with mental models, and that understanding trust and mental models may prove a profitable area for both future research and theoretical development. A framework for research is proposed to examine the nature of trust in small teams, the factors impacting on the development and maintenance of trust, and the impact of trust on team process and performance.

15. KEYWORDS, DESCRIPTORS or IDENTIFIERS

(U) Trust and Teams; Teams and Trust; Trust Literature Review; Trust; Teams

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